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ABSTRACT

This document contains teacher's materials for a six-unit secondary education vocational home economics course on housing, design, and furnishings. The units cover: (1) the societal aspects of housing (including the relationship between housing and the economy, population trends, and culture-related housing characteristics); (2) family housing needs and selection (including housing alternatives, rights and responsibilities in housing, and the impact of needs and desires on housing costs); (3) design of the home (including site selection, architectural styles, elements and principles of design, and landscaping); (4) home safety (including health and safety, home maintenance, and special needs housing features); (5) futurist housing (including the impact of technology); and (6) career options and adjustments (including personal characteristics needed for careers in this area, management practices for individuals who assume multiple roles, and effective money management). Materials for each unit include a conceptual outline shown in the left-hand column of each page that corresponds to applicable learning activities and evaluation experiences in the right-hand column. Key points for content discussion and methods for developing critical thinking skills are designated. Content areas relevant to developing basic academic skills are also marked, as are those areas relevant to developing skills within the elements common to all vocational education courses. Forty-four teaching aids keyed to the learning and evaluation experiences are included in the document. (CML)

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HOUSING, DESIGN, AND FURNISHINGS

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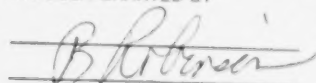
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- (1) acceptance policies on student transfers from other school districts;
- (2) operation of school bus routes or runs on a nonsegregated basis;
- (3) nondiscrimination in extracurricular activities and the use of school facilities;
- (4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;
- (5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;
- (6) nondiscriminatory practices relating to the use of a student's first language; and
- (7) evidence of published procedures for hearing complaints and grievances.

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HOUSING, DESIGN, AND FURNISHINGS

Housing, Design, and Furnishings is one of the various curriculum guides developed for use in Vocational Home Economics Education in Texas. Guides are available for secondary education in the areas of Comprehensive and Technical Home Economics and Job Specific Home Economics (including courses designed for academically disadvantaged and handicapped students). Other guides are available for adult education and postsecondary education in home economics subject training areas.

Overview of the Guide

Each subject guide is written to the teacher and is correlated closely with the Essential Elements prescribed by the State Board of Education in Texas Administrative Code 75.50 (b), and 75.83 (a) through (x). The competencies in each guide are the essential elements and the sub-competencies are the sub-elements prescribed in the Texas Administrative Codes for Vocational Home Economics. The conceptual outline as shown in the left hand column (corresponding learning and evaluation experiences in the right hand column) relates to the sub-element of each unit. Teaching Aids keyed to the learning and evaluation experiences are located at the end of each book. Designations have been used in the content for developing skills within the Common Elements to all vocational education courses with a designation of [C]. The application of basic/academic skills has been given a designation of [B]. Key points for content discussion and review have been given a KEY QUESTION designation, and methods for developing critical thinking skills have been given a CRITICAL QUESTION designation.

Particular care has been taken to provide age appropriate concepts and learning activities. Teachers will need to exercise judgment, initiative, imagination, and creativity in working cooperatively with students, parents, school administrators, and local advisory council members to develop a local program that will serve the students enrolled in Vocational Home Economics Education. The subject area guides are intended to guide the content, not dictate the content.

Teachers should not expect to use all of the suggested experiences in one class nor feel that all are needed to teach one essential element (which includes the competency and sub-competencies). The variety of experiences included should enable teachers to select and use those teaching/learning experiences that will help students reach the objectives.

An excellent resource for information on teaching all students is the book *Guide to Teaching*. The book addresses methods for teaching students with varying learning levels. It also provides special guidelines and information regarding the at-risk students and the disabled or handicapped students.

TAC 75.83
HOUSING, DESIGN, AND FURNISHINGS

- (r) Housing, design, and furnishings (1/2 unit) shall be a laboratory-oriented course and shall include the following essential elements:
- (1) Concepts and skills related to the societal aspects of housing. The student shall be provided opportunities to:
 - (A) determine the relationship of housing and the economy;
 - (B) determine the impact of population trends on housing; and
 - (C) discuss housing characteristics common to various cultures and locales.
 - (2) Concepts and skills related to family housing needs and selection. The student shall be provided opportunities to:
 - (A) discuss the impact of psychological, physiological, and social needs on housing decisions;
 - (B) compare housing alternatives;
 - (C) explain rights and responsibilities associated with housing;
 - (D) explain factors affecting housing choices;
 - (E) describe housing modifications necessary to accommodate the special needs of family members; and
 - (F) determine the impact of needs and wants on the cost of housing.
 - (3) Concepts and skills related to design of the home. The student shall be provided opportunities to:
 - (A) discuss considerations for site selection;
 - (B) describe basic construction and finishing considerations;
 - (C) identify architectural styles;
 - (D) illustrate furniture arrangement and space plans;
 - (E) apply elements and principles of design;
 - (F) relate design to the use of human and nonhuman resources; and
 - (G) explain effects of landscaping on design and conservation.
 - (4) Concepts and skills related to home safety. The student shall be provided opportunities to:
 - (A) relate housing conditions to health and safety;
 - (B) discuss the importance of home maintenance and safety; and
 - (C) describe housing features for family members with special needs.
 - (5) Concepts and skills related to futurist housing. The student shall be provided opportunities to:
 - (A) analyze the impact of technology on housing; and
 - (B) discuss future housing trends.

TAC 75.83
HOUSING, DESIGN, AND FURNISHINGS
UNIT I

- COMPETENCY:** (r.1) *Concepts and skills related to societal aspects of housing.*
- SUB-COMPETENCIES:**
- (A) *Determine the relationship of housing and the economy.*
 - (B) *Determine the impact of population trends on housing.*
 - (C) *Discuss housing characteristics common to various cultures and locales.*

CONCEPTS

- I. Societal aspects of housing
 - A. Relationship of housing and the economy

LEARNING AND EVALUATION EXPERIENCES

Instruct students to read selected references about the relationship between housing and the economy. Lead a class discussion about the effects of the economy on the housing industry and the effects of the housing industry on the economy. **KEY QUESTIONS:** How do changes in the economy affect the housing industry? How does the economic health of a community affect the type of housing available?[B]

Lead a class discussion about the cost of constructing homes in economically depressed areas and the cost of constructing homes in affluent areas. **KEY QUESTION:** How do housing construction costs change from economically depressed areas to affluent areas?

Lead a class discussion about county economic data. Encourage students to comment about how the county's economic health affects housing availability. **KEY QUESTIONS:** How does the economic status of families in the community compare to the economic status of the average national family? What is currently done to assist local families in need of housing?

Lead a class discussion about housing codes. Invite a resource person, such as a city building inspector, to explain the housing codes for the area and the impact the housing codes have on the economy. Ask the inspector to explain the process for evaluating construction. **KEY QUESTIONS:** Why are housing codes necessary? What impact do strict codes have on the economy? **CRITICAL QUESTION:** How do housing codes protect people?

Instruct students to utilize newspapers and housing magazines to gather information about past and present housing trends including room size, remodeling, and lighting. Have each student select a trend and prepare a written report about it. Compile the reports

[B] = Basic Skill Reinforcement
[C] = Common Essential Element

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

into a classroom reference booklet. KEY QUESTIONS: What are the expected costs of the trends? Which housing trends increase resale value? How do trends in housing affect the economy? How does the economy influence the size of homes currently being constructed? CRITICAL QUESTIONS: Which trends are extravagant? Which trends might become necessities in the next few years? [B]

Divide the class into groups and allow each group to select a major state or federal legislative act that affects housing economics. Instruct each group to share its information in an oral presentation. KEY QUESTION: What economic or social factors influenced the various legislative acts? CRITICAL QUESTION: Is the legislation successful? [B] [C]

Have students read articles published during the past few years that pertain to housing legislation. Ask volunteers to prepare a bulletin board exhibiting some of the articles and the information obtained. Lead a class discussion about the impact of the legislation on the local, state, and national economies. [B] [C]

Lead a class discussion to define *housing supply and demand*. Utilize published figures or statistics that show supply and demand for the area, state, or the nation to supplement the discussion. KEY QUESTIONS: How does supply and demand affect interest rates? new construction? sale of existing homes? demand for rental units?

Display a map of the county. Divide the county into sections and divide the class into corresponding groups. Instruct each group to obtain the cost of land in its section. Remind each group to include commercial real estate costs, rural real estate costs, and single family housing costs. Have students use the county map to illustrate cost patterns. [B] [C]

Have students conduct historical research that requires them to obtain examples of floor plans found in housing magazines published within the last thirty or forty years. Instruct students to research real estate costs per square foot for the given time periods. Have students develop a chart to illustrate the results. Lead a class discussion during which students compare past housing costs with current housing costs. KEY QUESTION: What are the principle reasons for increased housing costs? [B]

Invite a community resource person to speak to the class about the effect of home energy conservation on the economy. Ask the speaker to discuss current sources of energy, expected new sources of energy, and consumer costs for the energy sources. KEY QUESTIONS: What are current sources of home energy

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

- B. Population trends
1. Stages of the family life cycle

conservation? What types of energy sources can the consumer expect to use in the future? What are the projected costs of future energy sources?

Provide selected references for students to read that pertain to the family life cycle and family housing needs. Lead a class discussion to identify the stages of the family life cycle. Use Teaching Aid 1, Housing and the Family Life Cycle, to show students the types of housing needed for each stage of the family life cycle. KEY QUESTIONS: What types of housing are best for expanding families? beginning families? What special features are often needed in the homes of families in the aging years of the family life cycle?^[B]

Have students interview their parents, relatives, neighbors, or friends to learn about the chronological housing choices they made. Remind students to determine which life cycle stage the family was in each time a housing move was made. Have students share the results of their interviews with the class.^[C]

Divide the class into small groups and instruct each group to discuss each stage of the family life cycle. Tell each group to identify and list housing alternatives for families in each stage. Allow elected group leaders to share the lists of housing alternatives with the class. KEY QUESTION: How does family size influence the size of the required dwelling?^[C]

Have students draw floor plans of housing that newly married couples might choose to own or rent. Review the family life cycle and ask students to plan for adaptations in their floor plans that could easily be made as the families move into the expanding and developing stages of the family life cycle. KEY QUESTION: Which types of housing adaptations are the most economical? CRITICAL QUESTION: Why is housing adaptability vital to families in the expanding and developing stages of the family life cycle?

2. Profiles of home dwellers

Have students conduct research about the profiles of home dwellers nationally. Remind students to locate information about average ages of first time home buyers, homes selected, and median prices of homes in various parts of the country. Have students develop a chart to illustrate the information obtained. Lead a class discussion about students' findings. KEY QUESTION: How do first time home buyers usually finance their homes?^[B]

Instruct students to obtain information about the profiles of home dwellers in the area. KEY QUESTION: How do the profiles of home dwellers in the area compare to profiles of average home

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

dwellers nationwide? **CRITICAL QUESTIONS:** How are the profiles different? similar?^[B]

Divide the class into groups. Tell each group to select a home floor plan from an architectural or interior design magazine. Instruct each group to discuss and select the type of family for which the home is most appropriate. Have each group share its selection and reasoning with the rest of the class. **KEY QUESTIONS:** Which floor plans are most adaptable for changing family needs? Why? **CRITICAL QUESTION:** Why are the home floor plans appropriate for the selected family types?^[C]

3. Urban and rural development

Provide selected resources about urbanization for students to read. Lead a class discussion about urbanization. **KEY QUESTIONS:** What is urbanization? What effect does urbanization have on individuals and families? How has technology affected housing in rural areas? **CRITICAL QUESTIONS:** Are there enough natural resources to support urbanized environments? Why?^[B]

Instruct students to obtain population figures for urban and rural areas in the county over the past several decades. Use the figures to supplement a class discussion about population shifts. **KEY QUESTIONS:** Has the population changed? Why? **CRITICAL QUESTION:** How will possible changes affect housing?^[B]

Divide the class into small groups and appoint leaders for each group. Instruct each group to discuss the factors that influence people's residential location choices. **KEY QUESTION:** What are the most important decision-making factors? **CRITICAL QUESTION:** How will the importance of the factors change as lifestyles and family stages change?^[C]

Have students analyze their community's appeal as a place to relocate. Tell students to focus on such factors as location, schools, shopping, and other community resources. **KEY QUESTIONS:** What are the advantages and disadvantages of living in the community? Why did most local families select the community? **CRITICAL QUESTION:** How can local citizens improve the community?^[B]

C. Housing characteristics influenced by culture

Have each student select a picture of a historical home and a picture of a contemporary home. Tell each student to identify in a written paragraph the similarities in and the differences between the two homes. **KEY QUESTIONS:** Why were the design changes made? Is one style more functional than the other? Why?^[B]

Invite community resource people who are involved in historical preservation to speak to the class about the historical impact of

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

housing in the community. Guide students in preparing questions prior to the speakers' presentations.

Obtain audiovisuals about historical preservation of popular vacation communities. Allow students to share personal videos or slides from vacations. **CRITICAL QUESTION:** Why is it important to preserve examples of housing?

Take the class on a tour of historical homes. Lead a class discussion to allow students to comment about homes toured.

Instruct students to research historical housing and write reports about the findings. Have students research the original land documents, sizes of original structures, and materials used in the initial building of historical homes and businesses. Remind students that brief summaries of the families who occupied the homes or owned the businesses can add colorful human interest information to the reports. Have students present their reports to the class. **KEY QUESTIONS:** How did the first settlers obtain land rights? Which construction materials were used most frequently? Why?^[B]^[C]

Invite community resource people who have different cultural backgrounds to speak to the class. Ask the guests to address ways their traditions are reflected in their housing and furnishing decisions. **KEY QUESTIONS:** How do the guests integrate cultural preferences with current housing trends? How has housing evolved in the guests' cultures?

Have students study and research cultural housing in terms of style, material, and location. Remind students to take into consideration family and community life patterns, economical conditions, ethnic origins, and religious practices. Present films or videos to provide additional information. Have students compare their findings in small discussion groups.^[B]^[C]

Divide the class into groups to write scripts for filmstrips that illustrate particular cultural influences on housing. Collect the scripts and compile them into a classroom reference booklet. **KEY QUESTIONS:** Which cultures have the strongest influence on housing? Why?^[B]^[C]

Have students research housing trends in foreign countries. Instruct students to prepare and deliver oral reports that utilize slide presentations or taped interviews of people who live in or have lived in foreign countries.^[B]^[C]

Videotape brief segments of several television programs that show pictures of cultural housing and interiors. Present the videotape

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

and lead a class discussion about its contents. **CRITICAL QUESTIONS:** How does television shape ideas about housing? How does television promote cultural values? How does television affect housing selection?

TAC 75.83
HOUSING, DESIGN, AND FURNISHINGS
UNIT II

- COMPETENCY: (r.2) *Concepts and skills related to family housing needs and selection.*
- SUB-COMPETENCIES:
- (A) *Discuss the impact of psychological, physiological, and social needs on housing decisions.*
 - (B) *Compare housing alternatives.*
 - (C) *Explain rights and responsibilities associated with housing.*
 - (D) *Explain factors affecting housing choices.*
 - (E) *Describe housing modifications necessary to accommodate the special needs of family members.*
 - (F) *Determine the impact of needs and wants on the cost of housing.*

CONCEPTS

- II. Family housing needs and selection
 - A. Psychological, physiological, and social needs in housing

LEARNING AND EVALUATION EXPERIENCES

Have students read selected references about Maslow's hierarchy of needs. Use Teaching Aid 2, Maslow's Hierarchy of Needs, to illustrate the theory. KEY QUESTIONS: How does self-esteem affect housing choices? What is "quality of life?" How is quality of life affected by housing choices? How does safety affect housing choices?[B]

Define *psychological, physiological, and social needs*. Lead students to brainstorm for a list of physiological, psychological, and social needs. Have students classify the needs and write essays explaining how they impact housing selection. KEY QUESTIONS: Where should the needs be classified on Maslow's Hierarchy of Needs? Why?[B]

Have students read newspaper articles about homeless people in America and the psychological problems that are caused by lack of shelter, sanitation, and safety. KEY QUESTIONS: Which psychological problems are short term? long term? CRITICAL QUESTION: How should the problems be solved?[B]

Lead a class discussion to define *self-expression*. Have students complete Teaching Aid 3, Feelings. Ask volunteers to share their paragraphs with the class.[B]

[B] = Basic Skill Reinforcement

[C] = Common Essential Element

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

Lead a class discussion about the psychological effects of color in housing. KEY QUESTIONS: Why are school classrooms painted light, cool colors? Why are dark colors not used on all the walls in a room? How do colors affect consumers? CRITICAL QUESTIONS: How do people feel in rooms with brightly colored walls? dark colored walls? light colored walls? Why?

Lead students to brainstorm for a list of the many different social functions held within homes. Lead a class discussion about the home adjustments that are made to provide for the social functions of a family. Stress the importance of social activity for the family.

Define *environmental control systems*. Lead a class discussion about the relationship between environmental control systems and personal needs. Lead students to brainstorm to identify environmental control systems that can help conserve energy; save money; and provide security, comfort, efficiency, and safety to residences. KEY QUESTIONS: Which environmental control systems are most important to consumers? least important?

B. Housing alternatives 1. Types of housing

Lead students to brainstorm for a list of all the types of housing currently available. Instruct students to select types of housing from the list and research them for information to be given in oral reports. Encourage students to use visual aids during their oral reports. KEY QUESTIONS: Which types of housing are the most abundant? Why? [B] [C]

Have students read selected references about types of housing. Using the classified section of the newspaper, have students locate as many types of housing as possible that are available in the community. Ask volunteers to use city or county maps and colored push pins to identify locations of available types of housing. KEY QUESTIONS: Which locations have the same types of housing construction? Why? [B] [C]

Write the following housing alternatives on the chalkboard: "single dwelling," "two-story, split-level house," "mobile home," "log cabin," "apartment," and "penthouse." Have students select their housing preferences. Ask students to write paragraphs about reasons for their preferences. [B]

Obtain slides of various housing types and show them to students. Describe each house shown and have students write on sheets of paper their reactions to the houses. Have students share their reactions with each other. KEY QUESTIONS: Who most often lives in the selected types of housing? Is the pictured housing desirable? Why? CRITICAL QUESTIONS: How will the demands of changing family lifestyles affect housing design? housing availability? [B]

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

2. Advantages and disadvantages of housing types

Obtain housing classified advertisements from newspapers of large metropolitan areas and smaller sized areas. Have students compare the types of housing available in the community with the types of housing available in other areas. **KEY QUESTIONS:** Are there fewer or more types of housing available in the area? Why? What types of amenities do the housing units in metropolitan areas offer? in smaller areas?[B]

Obtain slides or pictures of single family dwellings. Present the slides or pictures to the class and lead a class discussion about the advantages and disadvantages of the types of single family housing displayed.

Lead a class discussion about socioeconomic levels and corresponding housing expectations. Have each student find three housing advertisements from the "For Sale" or "For Rent" columns of the classified advertisements. Stress that each advertisement should be representative of a different socioeconomic level. Allow volunteers to read their classified advertisements to the class. **CRITICAL QUESTIONS:** To whom are the advertisements most appealing? Why?[B][C]

Arrange for students to visit various types of housing, or present a videotape of different types of housing. Lead a class discussion regarding the advantages and disadvantages of the housing presented.

Make arrangements for students to visit a mobile home sales outlet, a mobile home manufacturer, or a mobile home park. Lead a class discussion about the advantages and disadvantages of mobile home living. Explain local, state, and federal regulations governing mobile homes. **KEY QUESTIONS:** What requirements must be met when a mobile home is moved? Are skirts required on mobile homes? Why? What does it cost to set up a mobile home? Which city building codes apply to mobile homes?

Divide the class into groups to research and to present oral reports about types of housing. Stress that the reports should include the advantages and disadvantages as well as any special features of each housing type.[B][C]

Instruct students to interview people who live in multifamily housing. Explain that the purpose of the interviews is to learn the advantages and disadvantages of living in multifamily housing. Have students share the information from their interviews in class. **KEY QUESTIONS:** What are the biggest disadvantages to multifamily housing? What advantages does multifamily housing have to offer families in the beginning stage of the family life cycle? families in the middle years of the family life cycle?[C]

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

Have students research the advantages and disadvantages of purchasing previously owned homes. Instruct students to interview people who have purchased previously owned homes. Tell students to ask questions about remodeling projects undertaken, the level of satisfaction achieved, and the number of problems that occurred. Also tell students to ask questions about factors that should be considered before purchasing previously owned homes. Based upon interview results, help students develop evaluation criteria for selecting previously owned homes.^[B] ^[C]

Ask a community resource person, such as an interior designer or a utility company home economist, to speak to the class about renovating previously owned homes. Guide students in preparing questions prior to the speaker's arrival. **KEY QUESTIONS:** Which areas of the home should be evaluated for renovation first? Which remodeling projects add the most to a home's resale value?

Have each student complete Teaching Aid 4, To Buy or Not to Buy. Divide the class into groups. Instruct each group to discuss the case study and decide upon the best action for Judy and John to take. Allow elected group leaders to explain the reasons for the groups' decisions to the class.^[B] ^[C]

Invite two community resource people to speak to the class. Invite one person who has moved from multifamily housing to single family housing and one person who has moved from single to multifamily housing. Have them share with the class the reasons they moved. **KEY QUESTION:** What were the advantages and disadvantages of living in each type of housing?

C. Rights and responsibilities in housing

1. Conservation and preservation of natural resources

Instruct students to read selected references about natural resources used in the home, such as air, water, and wood. Lead a class discussion regarding current statistics related to residential energy consumption. **KEY QUESTIONS:** What conclusions can be drawn from the statistics? How abundant are natural resources? Is energy consumption a problem? Why? Should society be concerned about energy consumption?^[B]

Have students identify what is meant by the term *energy efficient home*. Lead a class discussion about the criteria used to designate an energy efficient home.

Display Teaching Aid 5, Conservation Case Studies. Divide the class into groups and assign each group a specific case study. Instruct each group to identify the problem and the solution for its case study. Ask each group to elect a leader to explain the group's energy conservation solution to the class. **KEY QUESTIONS:** Which alternative is best? Why?^[B] ^[C]

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Give students copies of Teaching Aid 6, Energy Efficiency of Appliances. Lead a class discussion about information listed on energy guides. Have students calculate differences of buying a standard model or an energy efficient model of refrigerator-freezer. Have students decide which model they would buy.^[B]

Have students complete in the foods laboratory Teaching Aid 7, Appliance Energy Conservation Experiments. Lead a class discussion about the findings.^[B]

Have students calculate the cost of using home electrical appliances on copies of Teaching Aid 8, Calculating Appliance Operating Costs.^[B]

Have students develop plans that will encourage their family members to practice energy conservation. Distribute copies of Teaching Aid 9, Evaluating Energy Usage, and have students use the teaching aid to record their families' energy conservation habits.^[B]

Divide the class into groups and instruct each group to compile a list of ways families can conserve natural resources in each room of their homes. Ask elected group leaders to share the groups' lists with the class. Lead a class discussion about the practicality of applying the conservation suggestions to daily life.^{[B] [C]}

Instruct students to conduct research about water saving appliances. Have students determine the home appliances that use water and how much water they use. Lead a class discussion based on students' information. KEY QUESTIONS: How much water does a dishwasher use? How much water is needed to wash dishes by hand? CRITICAL QUESTIONS: Which system of washing dishes is more energy efficient? Why?^[B]

2. Quality and safety

Lead a class discussion about government housing that is available for low-income families. KEY QUESTIONS: Do people have a right to live in a home? Why? What role should the government play in providing housing for families? What kind of safety standards should the government set for low-income housing? What types of quality standards should the government use in building low-income housing? CRITICAL QUESTION: What responsibilities should families living in low-income housing have in maintaining the homes?

Lead a class discussion about home safety measures. Review the family life cycle stages and divide the class into groups. Assign each group a life cycle stage. Instruct the groups to create lists of safety measures appropriate for families in the stages assigned to them.^[B]

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Instruct students to identify the materials and practices used in the past to build homes. Lead a class discussion to compare the materials and practices used to build homes today with the construction materials and practices used in the past. **CRITICAL QUESTION:** Why are there fewer solid wood homes built today than in the past?

Invite a home builder to speak to the class about construction quality. Prepare students for the speaker's visit by helping them develop appropriate questions. **KEY QUESTIONS:** How has mass production of materials affected quality? What quality indicators should consumers look for?

Have students read selected references about safety in the home. Help students generate a list of hazards in the home and lead a class discussion about things students can do to eliminate some of the hazards in their homes. **CRITICAL QUESTION:** What is a renter's or a homeowner's home safety obligation?^[B]

Invite a city building inspector to lead a class discussion about home safety requirements. Ask the inspector to identify the criteria that each home must meet. **KEY QUESTIONS:** Who sets home safety standards? Are there different standards set by different groups? Are there set standards for previously owned homes? If so, how are they similar to the safety standards for new homes?

3. Insurance

Have students obtain homeowner's and renter's insurance brochures from several insurance companies. Lead a class discussion to compare the advantages, disadvantages, costs, coverages, and claim services of the different types of policies. Have students calculate insurance costs for specific dwellings. **KEY QUESTION:** What are the advantages and disadvantages of each type of insurance?^{[B][C]}

Lead a class discussion about housing features and insurance costs. Obtain brochures and posters from agents to help illustrate the important points. **KEY QUESTION:** Does the city or county have special regulations about hazardous materials?

Invite a household insurance agent to visit the class to explain the policies that are available and the circumstances for their purchase and use. Also ask the agent to explain floater policies for various types of valuable items.

Have students read selected references about housing insurance. Lead a class discussion to define the following insurance terms: *actual cash value, beneficiary, deductible, medical liability, personal liability, physical liability, premium, replacement cost value, riders, scheduled property, and unscheduled property.*^[B]

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Lead a class discussion about the importance of home insurance. Let students look through numerous insurance brochures and then explain common insurance requirements and appropriate coverage levels. KEY QUESTION: What is a floater policy? CRITICAL QUESTION: Why is replacement value insurance coverage important?

Display Teaching Aid 10, Homeowner's Insurance, to show students the differences in coverage between standard, broad, and comprehensive forms of homeowner's policies. KEY QUESTIONS: Which type of insurance offers the most protection? the least protection?[B]

4. Financial obligations

Introduce household costs budgeting. Have students complete Teaching Aid 11, Computing Monthly and Yearly Mortgage Payments. Lead a class discussion to review students' answers to the questions. KEY QUESTION: Which annual incomes make new mortgage payments difficult?[B] [C]

Divide the class into small groups and have the groups use computer programs to compare several types of mortgages. Also have the groups compare and discuss the effects of different down payments, mortgage lengths, and mortgage terms.[B]

Give students copies of Teaching Aid 12, Annual Income and Approximate Housing Cost, for students to calculate the approximate amount of money that should be spent on a home for different levels of annual income. KEY QUESTIONS: What is the maximum amount a family should spend on a home? How long do people usually pay for homes?[B] [C]

Invite a community resource person to speak to the class about home mortgages. Guide students in preparing questions prior to the speaker's arrival. Ask the speaker to summarize the types of mortgages available. KEY QUESTIONS: Why does a lender need the information requested? What are the differences between the mortgage applications?[C]

Invite a loan officer from a bank or mortgage company to speak to the class about the differences between and the similarities among conventional loans, Veterans Administration loans, Federal Housing Authority loans, and other types of loans. Prepare students for the speaker's visit by helping them develop appropriate questions.[C]

Have students research residential utility costs for the past few years, including water, garbage, electricity, gas, and telephone costs. Invite a utility official to visit the class to explain how costs are determined. Ask the official to explain the rate hike approval

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process. Prepare students for the speaker's visit by helping them develop appropriate questions. **KEY QUESTIONS:** What effect do utility costs have on consumer budgets? business budgets? **CRITICAL QUESTION:** Why are people concerned about energy costs?[B]

Divide the class into groups and allow each group to select a particular type of housing. Examples include the following: a single family house, a town house, a condominium, and an apartment. Instruct each group to determine the local cost of obtaining that type of housing. Also have each group determine the cost of obtaining similar housing in a different sized area. Have elected group leaders present the information in oral reports.[B] [C]

Obtain copies of local apartment associations' lease agreements, rental forms, security deposit forms, maintenance addenda to rental contracts, deposit agreements, and pet agreements. Distribute the lease agreements among students, and lead a class discussion about the information provided by the associations and the information required from the tenants. Give students the opportunity to fill out some of the forms. **KEY QUESTIONS:** What credit information do the apartment associations request from prospective residents? How should a maintenance problem be handled?[B]

Lead a class discussion about the terms associated with renting and leasing. Examples include the following: rent, security deposit, rental deposit, landlord, lease, sublet clause, tenant, vacate, eviction, lessee, and manager.

Lead a class discussion about the moving process. Invite a moving consultant to class to explain how costs are figured and how items are packed. Also ask the consultant to explain moving insurance coverage. Have students compare costs and services between a well-known moving company, a local moving company, and a truck rental company. **KEY QUESTIONS:** What are the advantages of each type of move? disadvantages?[B]

Lead a class discussion about the hidden costs of moving from one housing situation to another. Examples include the following: phone connection and disconnection fees; damage deposits; cable hookups; and water, sewer, electricity, and gas connections. Direct students to research the costs in the area. Ask volunteers to make a chart illustrating the research results.[B] [C]

Have students predict their annual incomes after high school graduation. Direct them to formulate financial plans for housing based upon their projections. Instruct students to select appropriate

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housing options from newspaper classified advertisements. Have students write one page essays that support their decisions to rent or own. KEY QUESTIONS: How much will housing cost annually? How much are utility connection fees? Will students live alone? Where will students live?[B] [C]

5. Privacy

Lead students to brainstorm to identify the external areas of homes that provide privacy. KEY QUESTION: What other areas of a home ensure privacy? CRITICAL QUESTION: How important is privacy in housing?

Write the words "protection" and "privacy" on the chalkboard. Lead a class discussion about the importance of protection and privacy in housing selection. Distribute Teaching Aid 13, Protection and Privacy. Have students complete the teaching aid and then ask them to share their answers with the class.[B]

Instruct students to write essays about the rooms in their homes that offer them the most privacy. Encourage students to record in their essays how they feel about the quantity and quality of privacy the rooms provide. KEY QUESTIONS: Which household rooms offer the most privacy? the least privacy? Why? CRITICAL QUESTIONS: How can the amount of privacy each room provides be increased? How can the quality of privacy be improved in each room?[B]

Ask students to speak to neighbors, friends, and families about common practices they use to promote privacy in their homes. Have students make lists of the practices learned. Divide the class into groups. Instruct students to discuss lists among group members. Have each group combine their individual lists into a group list. Ask elected group leaders to share the lists with the class.[C]

Display slides or pictures of residential rooms. Lead a class discussion about the amount and quality of privacy the rooms offer. Encourage students to consider structural and interior design. KEY QUESTION: Which rooms probably provide the most privacy? CRITICAL QUESTION: How can minor interior design changes alter the amount and quality of privacy a room provides?

6. Taxes

Have students interview local homeowners to determine the amount of school, county, and city taxes levied each year. Lead a class discussion to help students compare taxes assessed for different types of housing and businesses within the county or city. KEY QUESTIONS: How important to a potential buyer are the taxes assessed on a piece of property? Who must pay more taxes, homeowners or business owners?[B]

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Lead a class discussion about the reasons for taxes. Encourage students to identify specific goods and services that are paid for by collected tax dollars.

Invite a tax assessor to speak to the class to explain how property values and corresponding taxes are assessed and collected. Also ask the speaker to explain how the city, township, or village allocates the tax dollars. Prepare students for the tax assessor's visit by helping them develop relevant questions. KEY QUESTIONS: Which city department is allocated the most money? Why? How do people pay property taxes? What is a rent credit? CRITICAL QUESTION: How does the property tax base affect the amount and quality of community education and services?

Invite a real estate agent or an accountant to speak to the class about federal income tax benefits for homeowners. Have each student compare tax benefits for homeowners to tax benefits for renters in brief essays.^[B]

Invite an accountant or other trained tax advisor to speak to the class and provide information about ways owning a home rather than renting affects federal income taxes. Ask the speaker to develop a case study describing two similar families—one family owns a home and the other family rents. KEY QUESTIONS: How does owning a home affect one's federal income taxes? Do residents of this state pay both federal and state income taxes? What are deductions? What housing related expenses can a homeowner deduct when calculating federal income taxes? Where can one obtain information regarding federal income taxes? state income taxes?^[B]

7. Maintenance

Have students read selected references about household maintenance. Lead a class discussion about Teaching Aid 14, Maintenance Opinionnaire. Have students share their maintenance opinions with the class. KEY QUESTION: What living space responsibilities do individuals have?^[B]

Lead students to brainstorm to identify the tasks necessary to maintain a home. Have students organize the tasks into regular maintenance, monthly maintenance, and periodic maintenance categories.^[B]

Display Teaching Aid 15, Household Work Schedule, and lead a class discussion about the importance of developing a household work schedule. Divide the class into small groups and tell each group to create household work schedules for families in each stage of the family life cycle. KEY QUESTIONS: How do personal values affect the frequency of chore performance? Do

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households in different parts of the country have different work schedules? **CRITICAL QUESTION:** How should household chores be managed when individuals with different standards of cleanliness and order live in the same household?[B] [C]

Provide students with several copies of magazines, newspapers, and newsletters that contain home improvement sections. Instruct students to select columns or articles that identify and explain "Do It Yourself" methods for home improvement and maintenance. Ask volunteers to share with the class the improvement and maintenance tips they discover. **KEY QUESTIONS:** Which "Do It Yourself" home maintenance and improvement activities are most appropriate for middle income families to attempt? Which activities are practical for families in the aging years of the family life cycle to try? **CRITICAL QUESTION:** Why do families in the aging stage of the family life cycle frequently cite home maintenance chores as principle reasons for moving to smaller, single unit or multiple unit dwellings?[B] [C]

8. Landscaping

Lead a class discussion about the effects of landscaping on a home's value and appearance. Explain to students the reasons for and benefits of well-maintained landscaping. Solicit student opinion about the short-term and long-term responsibilities associated with landscape maintenance. **KEY QUESTION:** What is curb appeal?

Lead a class discussion about the application of the principles and elements of design to landscape design. Encourage students to suggest landscape examples that illustrate the application of the principles and elements of design. **KEY QUESTION:** How do the principles of proportion, balance, emphasis, and rhythm apply to landscaping?

Explain to students that a landscape presentation plan indicates placement of trees, shrubs, flowers, pools, walks, fences, drives, houses, and any other important features. Give students copies of Teaching Aid 16, Landscape Plan. Instruct students to indicate direction and land boundaries on the teaching aid. Also instruct students to use the symbols on the teaching aid to place landscaping around the house.[B]

Invite a landscape architect to explain to the class the basic premise and end result of landscaping. Ask the landscape architect to bring visual aids that illustrate each important point. Instruct students to write brief essays that summarize the information they learned from the presentation. **KEY QUESTIONS:** What functions do plants serve in a landscape? What other landscaping materials are used in landscaping? Before planning a landscape, what should the planner know about the property being landscaped?[B]

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- D. Factors affecting housing choices
 - 1. Human factors

Display slides or pictures of residential landscaping. Instruct students to use what they have learned about landscaping to offer critical commentary about the landscaping in the slides or pictures. Also encourage students to offer suggestions for improving the residential landscapes. KEY QUESTIONS: How are walls and fences incorporated into landscapes? How should shrubs be used to landscape? CRITICAL QUESTION: How should a designer plan a landscape so that it is attractive during all four seasons?

Lead a class discussion about the influence of personal values on housing preferences. Instruct each student to choose an advertisement from a newspaper of an appealing house that is for sale. Have each student highlight the key words, phrases, and ideas in the selected advertisement. Tell each student to submit the selected advertisement attached to a paragraph that explains why the house is appealing. KEY QUESTIONS: What aspect of the house was given the most attention in the advertisement? Are the highlighted aspects of each house important to most home buyers? CRITICAL QUESTIONS: For what kind of lifestyle is each house most suitable? Why?^[B]

Lead a class discussion about the following human factors that influence housing choices: age, occupation, income, marital status, education, number of occupants, interests, and activities. Divide the class into groups and have each group identify other personal characteristics that should be considered when selecting housing. Ask elected group leaders to explain the lists to the class.^[C]

Lead a class discussion about human values, goals, and standards and their relationship to housing. Have students identify and list their own values, goals, and standards for housing. Ask volunteers to share their lists with the class. KEY QUESTIONS: What are the most common goals? most common values? most common standards? CRITICAL QUESTIONS: Are the values, goals, and standards listed realistic? Why?^[B]

Instruct students to write essays about their perceptions of living with a roommate. Tell students to begin the papers by stating: "When I think of living with a roommate I think..."^[B]

Divide the class into small groups and instruct the groups to develop lists of living situations. Examples include the following: nuclear family units, same sex roommates, and communes. Ask elected group leaders to share their lists with the class. Lead a class discussion about the suggested ways a single housing unit can be shared by individuals or families. KEY QUESTIONS: Why is housing shared? What are the advantages of college students or working singles sharing a house or apartment? What

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are the disadvantages? What are the advantages of senior citizens sharing a house? What are the disadvantages?^[C]

Lead a class discussion about the various aspects of living with roommates. Divide the class into small groups and instruct each group to write a *Bill of Rights* that summarizes the ground rules for living together. Remind each group to include stipulations about such rights as privacy, time alone, space for personal belongings, and equal control over shared items.^{[B] [C]}

Lead a class discussion about sharing personal space at home and about how activities and hobbies affect the sharing of utilized space. KEY QUESTIONS: Are the needs of all family members considered? Do family members utilize the available space well? Do family members have enough space? Does the family need more space? CRITICAL QUESTIONS: Could the family live comfortably in a smaller house or apartment? How? How much more space would the family need in the future if it moved into another home?

2. Environmental factors

Display a map of the United States that indicates average temperature for each of the seasons in the different regions of the country. During a class discussion, instruct students to locate those areas that have the same types of temperatures as the local area. Also instruct students to locate the areas that experience extreme heat or cold. KEY QUESTIONS: How does average annual temperature affect housing design? construction? CRITICAL QUESTION: Why are structure foundations common in geographical regions that are exposed to cold temperatures for long periods of time?

Divide the class into groups. Assign each group a geographic area of the United States. Instruct each group to conduct research about the characteristics of housing in its geographic area. Encourage each group to locate pictures or slides of housing to use in its oral report.^{[B] [C]}

Have students select current housing related issues in the community. Examples include street repair, taxes, and utility rates. Instruct each student to write an essay about one of the issues. KEY QUESTIONS: Are any of the community housing related issues potential environmental issues? If so, which ones? Why?^[B]

Lead a class discussion about the environmental factors that influence housing choices. Examples include the following: climate, culture, economics, and technology. Instruct students to rank the environmental factors that influence housing the most and to write paragraphs that explain why the factors influence housing.^[B]

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Lead students to brainstorm for a list of technological features found in new construction, but not found in residential dwellings built ten years ago. KEY QUESTIONS: What effects do new technological features have on housing selection? How have the new technological features affected housing cost? CRITICAL QUESTIONS: Are the newest technology features worth the increased housing costs? Why?

Present a film or video about earth sheltered housing. Instruct students to take notes during the audiovisual presentation. After the film or video showing is complete, tell students to use their notes to write paragraphs that summarize the information presented in the audiovisual.^[B]

Have students review copies of a floor plan. During a class discussion, ask students to analyze the floor plan and suggest ways that families in each stage of the family life cycle should share the space. KEY QUESTION: How do individual interests and activities affect shared space?

E. Housing modifications for family members with special needs

Invite a caregiver for an elderly person to speak to the class about housing modifications needed for elderly family members with special needs. Ask the guest to show pictures of modifications that are easily done and are reasonably inexpensive. KEY QUESTIONS: Which housing modifications can the family members construct? Which modifications require professional construction?

Have students read selected references about housing modifications to meet the special needs of family members such as young children, handicapped people, and elderly people. Have students write essays to identify permanent and temporary housing modifications for family members with special needs.^[B]

Lead a class discussion about handicapping conditions such as limited vision, limited hearing, and wheelchair confinement. Ask volunteers to restrict their senses or mobility and then allow them to try to function in a foods laboratory. Allow the volunteers to share their feelings about the experience. Have the class to recommend modifications that will facilitate handicapped mobility in the foods laboratory. KEY QUESTION: What were the major problems encountered? CRITICAL QUESTION: What modifications should be made?^{[B] [C]}

Present an audiovisual about special modifications that assist handicapped people in their homes. Lead a class discussion about the modifications shown in the audiovisual and elaborate on equipment needed for daily care of family members with special needs.

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Divide the class into groups and provide each group with a floor plan of a residence. Instruct each group to evaluate its floor plan. Ask elected group leaders to explain the evaluations. CRITICAL QUESTION: How should the floor plans be modified for people with special needs?[B] [C]

Invite a parent or guardian of a child that has special needs to speak to the class about the family adjustments and home modifications that are necessary for a family member with special needs to be able live in the home. Also ask the speaker to explain how the experience has enriched the family. Prepare students for the visit by helping them prepare questions prior to the speaker's arrival.

Lead a class discussion about measurement requirements for doorways, counters, cabinets, walkways, and entrances adapted for use by handicapped people. Tell students to look through magazines to find pictures of housing features that accommodate people with special needs. Ask volunteers to create a bulletin board display from the pictures. CRITICAL QUESTIONS: How well has housing design kept pace with the specific requirements of family members that have special needs? What design changes and modifications may be used in the future?[C]

Arrange to take students on a field trip to a low-income housing project, a retirement community, an orphanage, or a college dormitory that provides housing for people with special needs. Have students interview residents and administrators to learn about the design and function of the facility, the facility's purpose, and the facility's problems and policies. Instruct students to write essays that summarize the information obtained in the interviews.[B] [C]

F. Impact of needs and wants on housing costs

Lead students to brainstorm to define *wants* and *needs*. Instruct students to write paragraphs that summarize their personal housing wants and needs. KEY QUESTION: What are the differences between wants and needs?[B]

Have students read copies of housing advertisements from newspapers. Using the information given, instruct students to write descriptions of the individuals and families most likely to rent or purchase the dwellings.[B]

Divide the class into groups. Assign each group a corresponding family type. Also provide each group with family demographic information. Instruct each group to use classified sections of the newspaper to find affordable housing that meets the space needs of its family. KEY QUESTION: What factors were considered when selecting the housing type?[B] [C]

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Have students list the items they want and the items they need in their homes. After the lists are made, have students use real estate listing books to estimate the costs of purchasing and installing the items that will satisfy students' wants and needs. Ask students to share their lists with the class. **KEY QUESTIONS:** How do the costs of wants compare to the costs of needs? How do wants and needs influence standard of living? **CRITICAL QUESTIONS:** Which wants should be eliminated in order to reduce the cost of housing? Why?^[B]

Display Teaching Aid 17, They Want to Move. Divide the class into three groups and assign each group one of the case studies displayed. Instruct each group to discuss its case study and answer the accompanying question. Select a representative from each group to explain the group's answer to the class.^{[B] [C]}

Have students list and identify their housing wants and needs. Divide the class into groups and ask the group members to share their lists with each other. **KEY QUESTION:** On what do people base their housing wants and needs?^[B]

TAC 75.83
HOUSING, DESIGN, AND FURNISHINGS
UNIT III

COMPETENCY:

(r.3) *Concepts and skills related to design of the home.*

SUB-COMPETENCIES:

(A) *Discuss considerations for site selection.*

(B) *Describe basic construction and finishing considerations.*

(C) *Identify architectural styles.*

(D) *Illustrate furniture arrangement and space plans.*

(E) *Apply elements and principles of design.*

(F) *Relate design to the use of human and nonhuman resources.*

(G) *Explain effects of landscaping on design and conservation.*

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- III. Design of the home
A. Site selection

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Briefly review housing terminology such as *zones, variances, ordinances, easements, and topography*. Display Teaching Aid 18, Considerations for Home Energy Conservation. Lead a class discussion about the influences of environmental elements and geographical characteristics on home site selection.

Invite a city planner to speak to the class about the value and importance of variances, zones, and ordinances. Guide students in preparing appropriate questions prior to the speaker's arrival. KEY QUESTIONS: Are zones more or less restricted than in previous years? Why?

Lead a class discussion about the effects of zoning in neighborhoods. Obtain a zoning map of the community and display it on a classroom bulletin board. Have students indicate where they live by using colored push pins. KEY QUESTIONS: How do area zoning laws affect neighborhoods? Are zoning laws important to builders? to renters? Why? Why do communities have zoning restrictions?

Display slides or pictures of numerous building sites. Lead a class discussion to compare the sites and approximate costs.^[B]

Obtain several home site plot renderings from a city or county surveyor's office. Have students compare the sizes and shapes of

[B] = Basic Skill Reinforcement

[C] = Common Essential Element

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the plots. KEY QUESTIONS: Why is it important for homeowners to see plots before making purchases? What is the relationship of home design to plot size and shape? [B]

Have students use the school library to investigate the availability of electricity and other utilities within the region. Instruct students to determine the cost of using electricity, drilling water wells, and installing propane and septic tanks for homes outside of city service limits. KEY QUESTIONS: Are connection costs more expensive in urban or rural areas? Why? [B]

Using the classified advertisement sections of newspapers, have students locate lots for sale. Lead a class discussion about lot prices. Instruct students to locate the lots on maps and then have students gather information about the availability and quality of the utilities provided in each area. KEY QUESTION: What are homeowners' options if city utility hookups are not available? [B]

Obtain county, city, school, and other tax information for building sites located within the community. Lead a class discussion about how the taxes are assessed. Also explain how the community allocates revenue generated by taxes. KEY QUESTION: Why are taxes important considerations when selecting home sites? [B]

Lead a class discussion about the advantages and disadvantages of living in cities, suburbs, and rural communities. KEY QUESTIONS: What factors help determine where people choose to live? What cost factors should people consider when selecting home site location?

Point out the locations of schools, shopping areas, neighborhoods, and industrial areas on a map of the community. Lead a class discussion about the advantages and disadvantages of choosing home sites in close proximity to these areas. CRITICAL QUESTIONS: Why do people choose to live in urban areas? suburban areas? rural areas?

Present information about various types of neighborhood plans. Show audiovisuals that explain planned neighborhoods. Divide the class into groups and tell the groups to use what they learned from the audiovisuals to plan neighborhoods. Have elected group leaders explain the neighborhood plans to the class. KEY QUESTIONS: Where are new housing developments generally located? How are established housing developments changing? [B] [C]

Show slides of exterior views of homes and the lots on which they are built. Lead a class discussion about site topography and the grading of lots. KEY QUESTIONS: How does land gradation

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topography influence home design? How can landscaping influence building site topography?

Instruct students to gather information about the cost of preparing housing lots for construction. Have students compile lists of professionals who provide lot preparation services. Lead a class discussion about the need for lot preparation.^[B] ^[C]

Present slides that show numerous houses constructed on a variety of lot types. Instruct students to write essays evaluating the placement of the houses on the lots. Remind students to consider wind direction, amount of direct sunlight, and other environmental factors when evaluating housing placement. Lead a class discussion about the sun's impact on energy conservation. Use Teaching Aid 19, Winter and Summer Sun, to show the location of the sun in the summer and winter. KEY QUESTIONS: What changes could be made in either the home designs or the lots to provide maximum benefits? What measures can be used to shield rooms from the weather?^[B]

B. Basic construction and finishing considerations 1. Energy Conservation

Lead a class discussion to define energy conservation terms including *solar water heater, insulation, fiberglass, ventilation, kilowatt, skylight, exhaust, thermostat, awning, weatherstripping, caulking, recycling, and landscaping*. Have students complete Teaching Aid 20, Energy Conservation Terminology.^[B]

Lead a class discussion about insulation terminology including blanket, batt, loose fill, and fiberglass. Using Teaching Aid 21, Insulation, explain to students about different kinds of insulation and where it is used in houses. KEY QUESTION: Where can insulation be purchased?^[B]

Lead a class discussion about factors that affect the amount of energy consumed in the home. Stress the following topics:

- 1) Changes in outdoor temperature
- 2) Structural makeup of the home
- 3) Lowering the thermostat in the winter
- 4) Raising the thermostat in the summer
- 5) Family size
- 6) Family structure
- 7) Family habits
- 8) Family use of appliances and equipment

Allow students to conduct the energy conservation experiments on Teaching Aid 22, Energy Conservation Experiments. Have students work in groups to perform each experiment. Have elected group leaders record the results of the experiments and present the information to the class. Emphasize the experiments' relationships to home energy conservation.^[B] ^[C]

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Have students obtain information about estimated years of service for major household appliances and equipment. Lead a class discussion about the maintenance costs of the equipment.^[B]

Arrange for a representative from a utility company to visit the class to demonstrate how to determine home energy efficiency. Ask the guest to conduct an energy audit of the classroom and the school. **CRITICAL QUESTION:** What steps should be taken to improve energy efficiency?

Demonstrate the proper use of caulking and weatherstripping materials. Lead a class discussion about the costs of the materials and then allow students to practice using the materials. **KEY QUESTION:** How does caulking and weatherstripping conserve energy?

2. Foundations

Present basic information about the advantages and disadvantages of concrete slab foundations and pier and beam foundations. **KEY QUESTIONS:** What maintenance do slab foundations require? pier and beam foundations? When should slab foundations be used? pier and beam foundations? Why?

Have students read selected references that explain basic housing construction techniques such as foundation construction. Show a video or a slide set that depicts the techniques used in various stages of housing construction.^[B]

Lead a class discussion to help students define the following types of housing foundations: *concrete slab, pier, beam, footing, drain tiles, foundation walls, crawl space, sill, anchor bolts, termite guard, and floor slab*. Show Teaching Aid 23, Housing Foundations, for examples. **KEY QUESTIONS:** What can happen if a bad foundation is not replaced? What types of foundations are used in the area? **CRITICAL QUESTION:** Why is the foundation of a house important?

Describe the methods of constructing homes—total factory construction, partial factory construction, modular construction, site construction, and mobile home construction. Lead a class discussion during which students identify the advantages and disadvantages of the construction methods. Remind students to consider quality, uniformity, mobility, aesthetic qualities, and cost.

Lead a class discussion about the following housing construction details: flashing, fill, finish grade, gutter, down-spout, ground drain, and dry well. **KEY QUESTIONS:** Why are the details important to the house structure? Why is it important for potential home buyers to understand construction details?

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- 3. Roofs
 - a. Framing

Display Teaching Aid 24, Types of Frame Construction. Point out each frame component and explain the terminology. Cover the labels and have students practice identifying the frame components.^[B]

Invite a builder to speak to the class about frame construction. Ask the builder to discuss frame construction supplies and techniques most commonly used. Prepare students for the speaker by helping them develop appropriate questions. **KEY QUESTIONS:** What is the standard measurement distance for stud placement? What are diagonal braces?

Display Teaching Aid 25, Roof Frame Construction. Explain other terms associated with roof framing. Lead a class discussion to help students define *ridge, valley, gable, hip, fascia, rafter, ridge board, rise, slope triangle, run, collar beams, top plates, ceiling joists, sheathing, cornice, soffit, roof pitch, and truss construction*. **KEY QUESTION:** How are rafters and ridge boards used to frame roofs?

Have students read references that illustrate numerous roof types and styles. Examples include the following:

- 1) Hip
- 2) Pitch gambrel
- 3) Mansard
- 4) Shed
- 5) Flat
- 6) Saltbox
- 7) Vaulted

Lead a class discussion during which students identify roof types. Supplement the discussion by showing pictures or slides of residential housing roofs. **CRITICAL QUESTIONS:** How does roof type affect interior design of the home? exterior design?

- b. Covering

Divide the class into groups and assign each group a roof covering. Have groups prepare oral reports about roof coverings. Examples include the following:

- 1) Asphalt
- 2) Concrete
- 3) Slate
- 4) Tiles
- 5) Shingles
- 6) Shakes
- 7) Metals

Remind each group to include information about installation, durability, and costs in its report. Require each group to obtain samples to display during its oral report. **KEY QUESTIONS:** What type of roof covering is used on most homes? What type of roof covering is used on most commercial buildings? Why?^{[B] [C]}

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Invite a construction roofer to speak to the class about roof design, style, construction, and cost. Ask the speaker to bring display samples of roofing materials. Guide students in preparing appropriate questions prior to the speaker's arrival.

Present slides that show a variety of roof coverings including wooden shingle, composition shingle, and clay tile. Lead a class discussion about roofing materials and how they influence the design of houses. CRITICAL QUESTION: Why is roofing felt applied to the roof rough boarding?

- 4. Floors
 - a. Framing

Lead a class discussion about floor framing and define *floor joists*, *subfloors*, *bridging*, and *sill plates*. Instruct students to look through architecture and construction magazines to find illustrations of each type of floor frame. KEY QUESTION: How are the joists, subfloors, and bridging related?

Lead a class discussion about floor framing for homes with basements. Instruct students to write essays that compare and contrast floor frames in houses with basements to floor frames in houses without basements.^[B]

Show slides that illustrate the progression of floor frame construction. Thoroughly describe the activity that occurs in each slide. Lead a question and answer session. KEY QUESTION: What do squeaky floors suggest about bridging?

- b. Covering

Have students read selected references about floor coverings. Explain the two major classifications of floor coverings, and ask students to brainstorm for lists of examples of each floor covering classification. KEY QUESTIONS: What are the advantages of each type of floor covering? disadvantages?^[B]

Divide the class into groups. Have each group prepare and present an oral report on a chosen type of floor covering. Instruct each group to thoroughly explain the floor covering's use, design characteristics, cost, application technique, maintenance, and care requirements. Ask each group to display an example of its floor covering.^[B] ^[C]

Prepare an exhibit of floor coverings and indicate the approximate cost of each. Instruct students to calculate the cost of purchasing enough of each type of floor covering for a 10' x 12' room. KEY QUESTIONS: Which type of floor covering is most versatile? Why? durable? Why?^[B]

- 5. Walls

Define *load-bearing* and *nonload-bearing walls*. Show students illustrations of wall construction and point out the importance and

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functions of load-bearing walls and nonload-bearing walls. Have students identify load-bearing walls on floor plans. **KEY QUESTIONS:** What impact would removal of a wall have on any particular room? on an entire home? **CRITICAL QUESTION:** Why is it important to identify load-bearing walls before planning a remodeling project?

Present an audiovisual that shows application of several types of wall insulation. Display samples of insulation and then lead a class discussion about wall insulation and its role in housing. Explain insulation R values for each type of insulation presented. **KEY QUESTIONS:** What role does the R value play when homeowners select appropriate wall insulation? What is the difference between blanket and fill type insulation?

Have students read selected references about wall treatments. Display samples of wallpaper, paint, and paneling. Lead a class discussion about the selection of each wall covering on the basis of design, durability, and maintenance. Have students calculate the costs of painting, wallpapering, and paneling a 12' x 16' room.^[B]

6. Ceilings

Have students read selected library references about ceilings. Review a cross section of ceiling construction with the class. **KEY QUESTIONS:** What are ceiling joints? lintels?^[B]

Lead students to brainstorm for types of ceiling materials used in homes, such as gypsum board, wood panels, plaster, suspended ceiling materials, cathedral ceiling materials, and beams. Display interior pictures that illustrate each type of ceiling material. Solicit student opinion about the appropriateness of the types of ceilings selected for the pictured rooms.

Lead a class discussion about how ceilings can be constructed and finished in order to meet the needs of problem or special situations, such as a recording studio or a theater. Lead students to brainstorm for a list of ceiling construction and finishing techniques that are used for specific purposes. **KEY QUESTION:** Which ceiling materials are the most acoustic? **CRITICAL QUESTION:** How can ceilings be used to highlight or subdue other structural aspects of rooms?

7. Doors

Display Teaching Aid 26, Door Frame Construction, to illustrate door frame construction. Instruct students to identify and record definitions for the door construction terms on the teaching aid. Ask volunteers to share their definitions with the class. Compile all the definitions into a classroom reference booklet.^{[B][C]}

Lead a class discussion to define types of doors such as *flush*, *stile*, *rail*, *swinging*, *screen*, *sliding*, *glass*, *folding*.

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louvered, garage, and paneled. Lead students to brainstorm for possible uses for each type of door identified. KEY QUESTIONS: Which type of door is most appropriate for a home in a high crime area? Why?

Lead a class discussion about the differences between hollow and solid doors. Have students identify where it is most appropriate to use each type of door in a house. Also have students write paragraphs that compare and contrast the quality, durability, and cost of each type of door. KEY QUESTIONS: Does a quality difference exist? Why? What special features exist? What is the most common price range?^[B]

Take the class on a field trip to a home supply center to compare energy efficient doors, or ask someone from a lumber yard or other store that sells doors to speak to the class about energy efficient doors. KEY QUESTIONS: What materials are used to construct energy efficient doors? What makes some types of doors more energy efficient than other types?

8. Windows a. Types

Display pictures or slides of the following types of windows: *jalousie, vertical, double hung, pivotal, bay, Palladian, skylight, French door, fanlight, and sidelight.* Have students clip magazine pictures that illustrate each window type. Ask volunteers to make a bulletin board display with the pictures titled, "Windows of the World." KEY QUESTION: What are the three principle types of windows? CRITICAL QUESTION: How can storm windows reduce heating costs in cold weather?^[C]

Lead a class discussion about the functions of windows. Examples include the following:

- 1) To let in daylight
- 2) To ventilate rooms
- 3) To reduce heat loss
- 4) To decorate walls

Divide the class into groups and assign each group a window function. Instruct each group to develop a list of the window types most appropriate for its assigned function. Ask elected group leaders to share lists with the class. KEY QUESTION: What determines the best type of window to be used for each housing situation?^[B] ^[C]

b. Construction

Lead a class discussion to define the following terms associated with window construction: *sash, muntin, jamb, head, sill, apron, mullion, lights, glazing, weatherstripping, flashing, and spacer.* KEY QUESTION: What are the three essential parts of a window?

Invite a community resource person to speak to the class about the types of glass used in window construction. Ask the guest to

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9. Exterior building materials

bring samples of the types of glass used. Have students prepare questions for the speaker in advance. **KEY QUESTION:** What determines the type of glass that should be used in window construction?

Invite a resource person from a store that sells windows to speak to the class about the importance of energy efficient windows. Have the resource person bring brochures or illustrations of the construction of energy efficient windows. **KEY QUESTIONS:** How are energy efficient windows constructed? installed? Are energy efficient windows more expensive to buy than other windows? How can an energy efficient window help an individual save money?

Obtain samples of home construction supplies from a supply center. Display the samples in class and lead a class discussion to compare the materials. Stress durability, aesthetics, ease of use, and cost. **KEY QUESTIONS:** What are the most common exterior materials used in the area? Why are different materials used in various geographic regions?

Present a slide show of exterior building materials. Lead a class discussion about the construction materials used and the reasons for their use. **KEY QUESTION:** What is the purpose of rough boarding?

Lead a class discussion about the factors that influence the selection of exterior building materials. Stress the importance of cultural background, available resources, region of the country, economic resources, personal taste, availability, environmental factors, durability, and specific requirements.

Show audiovisuals of home exteriors. Lead a class discussion about exterior construction materials used. Examples include the following:

- 1) Slate roofing
- 2) Wood shingle roofing
- 3) Aluminum siding
- 4) Brick siding

Instruct each student to select an exterior building material and write a paragraph stating why he or she thinks it is the best construction choice. Encourage each student to consider materials availability, maintenance requirements, and cost effectiveness. Collect the papers and compile them into a classroom reference booklet. **KEY QUESTIONS:** How does exterior design influence beauty? Which homes are most appealing? Why? **CRITICAL QUESTION:** How do privacy, maintenance requirements, and energy conservation needs influence exterior construction material choices?^[B]

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Invite a draftsman or an architect to explain and illustrate how building materials produce aesthetically pleasing effects. Prepare students for the speaker's presentation by helping them develop appropriate questions. KEY QUESTION: What aesthetic contributions do exterior materials give to homes?

Invite a custom builder to explain the building process to the class. Ask the builder to describe each aspect of the process from selection of materials to completion of construction. Have students prepare questions to ask the builder. CRITICAL QUESTION: Why is housing construction knowledge important?

Show an audiovisual about the insulation qualities of various building materials. After the audiovisual presentation, review the characteristics of rock, wood, brick, and plaster. KEY QUESTIONS: How is insulation used to prevent outside noise from entering the home? Which building materials are best? Why?

10. Plumbing and electrical systems

Invite a plumber to speak to the class. Ask the plumber to discuss quality materials used in plumbing, cost of plumbing materials, and consumer plumbing expectations. Help students prepare questions to ask the speaker. KEY QUESTIONS: What is a plumbing code? What is the local plumbing code?

Instruct students to read references about plumbing systems. Lead a class discussion to help students define the following plumbing vocabulary words: *code, fittings, piping, recovery rate, septic tank, disposal, cesspool, and fixtures.*^[B]

Obtain examples of floor plans for apartments, one-story single unit houses, two-story single unit houses, and duplexes. Have students evaluate the placement of plumbing on the floor plans. Ask volunteers to share their evaluations with the class. KEY QUESTIONS: Why are plumbing systems placed in close proximity to one another in apartments? residence halls? duplexes? How does proximity affect plumbing system cost?^[B] ^[C]

Have students research the cost of bathroom fixtures. Instruct students to compare and contrast the costs of plastic and molded fixtures in brief reports. Compile the reports into a classroom reference booklet. KEY QUESTIONS: What are the advantages of plastic plumbing? disadvantages?^[B]

Have each student look through architecture and interior design magazines to select fixtures for a bathroom that measures 8' x 10'. Give each student a budget for designing the bathroom. Tell each student that the assigned budget should cover all ceiling, floor, and wall plumbing construction and finishing. KEY QUESTION: What are prefabricated tub and shower units?

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CRITICAL QUESTION: Why are prefabricated units most appropriate for use in new home or apartment construction?[B]

Lead a class discussion about terms associated with residential electrical systems including electric meter, fuse box, circuit, fuse, circuit breaker, outlet, ampere, convenience outlet, lighting outlet, overcurrent device, receptacle, service entrance, voltage, watt, dimmer switch, and toggle switch. Obtain samples of some of these items from a hardware store and allow volunteers to prepare an exhibit from the materials. **KEY QUESTION:** What factors determine the number of circuits needed in residential homes? **CRITICAL QUESTION:** When should residential rewiring be considered?

Explain meter reading by displaying Teaching Aid 27, How To Read Your Electric Meter. Give students copies of the teaching aid to complete and review the correct answers in class. **KEY QUESTION:** What unit of measure is used to determine electricity usage?[B]

Show slides or pictures of places where residential meters are generally located. Distribute copies of Teaching Aid 28, Meter Reading Record, and instruct students to read the meters at their homes for seven days. Remind students to read and record the meter readings accurately. **KEY QUESTION:** How is the amount of consumed energy measured? Were you surprised about the results of the meter readings?[B]

11. Heating and cooling systems

Have students read library references about heating and cooling systems. Instruct students to write reports that define the most commonly used heating and cooling systems. Also tell students to include sections that compare the advantages and disadvantages of each type of system. **KEY QUESTION:** What are the most common types of heating and cooling systems found in local home construction?[B]

Lead students to brainstorm for a list of heating needs in a variety of climates or regions. Lead a class discussion about the types of fuel and heating methods used in homes in the climates or regions. **CRITICAL QUESTION:** What alternatives to home heating may be available in the future if the current supply becomes inadequate or is depleted?

Invite a resource person from a utility company to describe to the class adequate heating and cooling systems for specific types of housing. Have students prepare questions to ask the speaker. **KEY QUESTIONS:** Why is the size of an air-conditioning unit important? What can happen if an air-conditioning unit is not the correct size?

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- Instruct students to use library references to identify cooling needs in various climates or regions. Also instruct students to gather information about various types of air conditioning. Allow students to share their information and debate the advantages and disadvantages of each cooling system during a class discussion. KEY QUESTION: What is a BTU (British Thermal Unit)? CRITICAL QUESTIONS: How should people control cooling systems for operation efficiency? for energy conservation?[B]
12. Blueprints/floor plans
- a. Terminology
- Lead a class discussion during which students define the following terms associated with floor plans: *public area, quiet area, scale drawing, social area, template, territory, traffic lanes, work and play area, and zone*. KEY QUESTION: What are the four zones of a home?
- Divide the class into groups and instruct the groups to define the following terms associated with blueprints: *elevations, perspective, architectural ruler, floor plans, window schedule, and door schedule*. Stress the importance of the symbols to builders, building inspectors, buyers, and architects.[B]
- b. Symbols
- Give students copies of Teaching Aid 29, Floor Plan Symbols. Lead a class discussion about each symbol and the importance of the symbols to builders, architects, and homeowners. Have students study floor plans to identify the symbols.[B]
- Distribute copies of Teaching Aid 30, Single Unit Floor Plan. Instruct students to draw in the plumbing, electrical, and other floor plan symbols needed for the home. Have students write explanation paragraphs that explain the reasons for their placement decisions. CRITICAL QUESTION: How can understanding floor plans help evaluate a housing unit's ability to meet a family's current and future housing needs?[B]
- C. Architectural styles
1. American period styles
- Have students read selected resources about American period styles or show media that illustrates each period style. Examples include the following:
- 1) Cape Cod Colonial
 - 2) Georgian
 - 3) Federal
 - 4) Northern Colonial
 - 5) Victorian
 - 6) Saltbox
 - 7) Southern Colonial
 - 8) Greek Revival
 - 9) Contemporary
- KEY QUESTION: What are the characteristics of each style? CRITICAL QUESTION: What influences do the styles have on construction today?[B]

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Lead a class discussion about architectural features of American Period Styles. Use Teaching Aid 31, American Period Styles Of Housing, to supplement the discussion. KEY QUESTION: How did the home architecture of French settlers who settled in northern regions differ from the home architecture of French settlers who settled in southern regions? CRITICAL QUESTION: Why did the architectural differences exist?

Have students clip examples of each American period style of housing from housing magazines. Require students to identify and label all pictured architectural styles. Allow volunteers to create a bulletin board display with the pictures titled, "Housing American Style." KEY QUESTION: From what did the predominant architectural styles of colonial America originate? [B] [C]

Lead a class discussion about the construction materials that were available when the architectural styles were first popular. Explain how the building materials were first used. KEY QUESTION: What impact did materials availability have on architectural design? [B]

Tell each student to prepare a research paper about an American period style. Encourage students to include illustrations in each report. Compile the reports into a classroom reference booklet. [B]

2. Other historical influences

Lead a class discussion about the effects of the early Egyptian, Greek, and Roman civilizations on architecture. Display Teaching Aid 32, Types Of Columns, Arches, and Pediments. Have students locate examples of columns, arches, and pediments in current architectural styles.

Divide the class into groups to research the impact twentieth century architects had on home design. Architects for students to research include Frank Lloyd Wright, I.M. Pei, Philip Johnson, Marcel Breuer, Mies van der Rohe, Alvar Aalto, Walter Gropius, and Charles Le Corbusier. Have groups locate and utilize pictures of homes designed by these architects. Have elected group leaders present the research information to the class. KEY QUESTIONS: What effects have the architects' designs had on current design? How did Frank Lloyd Wright's philosophy influence his style and architectural designs? [B] [C]

Lead a class discussion about cultural and historical influences on architecture. Example cultural and historical influences include the following:

- 1) Spanish
- 2) English
- 3) Half-timber
- 4) French

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- 5) Adobe
- 6) Pueblo
- 7) Japanese

Instruct students to locate and clip examples from magazines of houses that reflect the cultural and historical influences on architecture. Allow volunteers to create a bulletin board display from the pictures. **KEY QUESTION:** Why does Spanish and Indian architecture show similarity?^[C]

Instruct students to prepare oral reports about notable historical houses such as Windsor Castle, Versailles, Buckingham Palace, Monticello, Mount Vernon, and the White House. Stress that the reports should include floor plans and information about architectural features and building materials. Have students share their reports with the class. **KEY QUESTIONS:** What impact have these famous homes had on past housing design? How do they influence current residential design?^[B] ^[C]

Lead a class discussion about architectural features of homes. Examples include the following:

- 1) Louvers
- 2) Porticos
- 3) Balconies
- 4) Breezeways
- 5) Terraces
- 6) Picket fences
- 7) Rail fences
- 8) Balustrades

Show illustrations of each feature and help students decide which architectural style originated the feature. **KEY QUESTIONS:** What effect does the use of the features have on the overall appearance of the home? What are the costs of the pictured features?

Show slides of homes that depict each architectural style. Have students identify architectural characteristics and period styles.

D. Furniture and space arrangement

NOTE: It is recommended that Unit III, Section E be taught before Section D.

Have students read selected references about furniture arrangement. Also show audiovisuals that identify and explain the factors that influence furniture arrangement. **KEY QUESTION:** What is the focal point of a room? **CRITICAL QUESTION:** How can a room's focal point be manipulated by furniture arrangement?^[B]

Lead a class discussion about the principles of furniture arrangement using Teaching Aid 33, Principles of Furniture Arrangement.

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Have students select four pictures of residential rooms from magazines. Direct students to evaluate the furniture arrangements using Teaching Aid 34, Furniture Arrangement Evaluation. CRITICAL QUESTION: What changes should be made?^[B]

Lead a class discussion about the relationship of activities to furniture and room arrangement. Show pictures of interiors that illustrate how activities influence furniture arrangement. For each illustration shown, lead a class discussion about the activity influenced, and explain the furniture arrangement that would suit the activity. KEY QUESTIONS: Has enough space been allocated for activities? Why?

Lead a class discussion about the space needed for residential traffic lanes. Use Teaching Aid 35, Dimensions of Traffic Lanes, to supplement the discussion. CRITICAL QUESTION: How do traffic lanes influence quality of home life?

Lead a class discussion about traffic lane needs for different zones in the home. KEY QUESTIONS: What factors are important to consider when planning traffic lanes in a kitchen? bedroom? living room?

Have students study Teaching Aid 36, Factors for Judging a House Plan; Teaching Aid 37, Judging the Areas in a Home; and Teaching Aid 38, Questions to Answer Before Choosing a House Plan. Lead a class discussion about the criteria used to judge a house plan.^[B]

Have students evaluate floor plans based on traffic lanes. Lead a class discussion about planning efficient traffic lanes. Use Teaching Aid 39, Traffic Lanes, to illustrate traffic lane efficiency. Have students draw lines indicating traffic lanes on Teaching Aid 40, Practical Traffic Lanes. Collect the completed teaching aids and let the class evaluate the traffic lanes. Remind students that constructive criticism is welcome, but it must be supported by theory and accompanied by suggestions for improvement. KEY QUESTIONS: Are the traffic lanes efficient? Why? CRITICAL QUESTION: What arrangement will improve efficiency?^[B]

E. Elements and principles of design

Give students a pretest about the principles and elements of design. Lead a class discussion to review the principles and elements of design. KEY QUESTION: How do the principles and elements of design relate to each other?^[B]

1. Elements

Have students evaluate the use of the elements of design (line, shape/form, space, texture, color, and mass) in the exterior design of residential homes. Instruct students to find magazine pictures of two period styles of housing. Tell students to write paragraphs

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that evaluate how well the elements of design are used in the exterior design of the two homes.^[B]

Show slides or illustrations of rooms commonly found in a home. Have students identify how the elements of design are used in each room and how they contribute to the overall design of the room.

Divide the class into groups and tell each group to select a picture of a residential room interior. Instruct the members of each group to work together to identify how the elements of design are used in the room. KEY QUESTION: What are the relationships between shapes and lines in the room?^[C]

2. Principles

Have students evaluate the application of the principles of design (proportion/scale, balance, rhythm, emphasis, and unity/harmony) to pictures of exterior views of homes. Instruct students to clip magazine pictures of different period styles. Give students the opportunity to explain how the principles of design are incorporated into the exterior designs of the homes. CRITICAL QUESTION: Why does the balanced use of the principles produce aesthetically pleasing results?

Divide the class into groups and tell the groups to clip pictures of residential room interiors from magazines. Instruct the groups to discuss how room arrangements illustrate utilization of the principles of design. CRITICAL QUESTION: Why is a room without unity a confusing combination of parts?

Have students apply the principles of design to home exteriors. Show slides or illustrations of the rooms commonly found in homes. For each room, have students identify how the principles of design contribute to the overall design of the room. KEY QUESTIONS: Which principle of design is the most noticeable? least noticeable? Does one principle dominate the room? If so, which one? Why?

F. Resource influence on design

1. Human

Lead students to brainstorm to identify human resource people that are utilized in housing design, such as architects, builders, and interior designers. For each resource students list, lead a class discussion about the abundance and availability of the resource. KEY QUESTION: Are the resources busy year round? Which seasons are most busy? In which areas of the state are most of the resources located?

Display several different floor plans with a variety of room arrangements. Ask students to specify how human resources affect people's ability to perform household tasks in houses constructed from the floor plans displayed.

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2. Nonhuman

Lead a class discussion about the importance of builder and contractor skills. **KEY QUESTIONS:** What is the difference between an apprentice and a skilled craftsman? What would be the results of employing each? What would be the wage difference?

Lead students to brainstorm to determine nonhuman influences on design, such as stone, rock, and glass. Have students conduct library research about different resources. Encourage students to compare price and supply among domestic and imported nonhuman resources. Have students share their information with the class. **CRITICAL QUESTION:** How does the natural environment influence housing design?^[B]

Lead a class discussion about housing orientation. Prompt students to think about the cross ventilation, exposure, and views that houses have during all four seasons of the year. **KEY QUESTION:** What three objectives do good building site orientations achieve? **CRITICAL QUESTION:** Why does poor exposure often increase housing costs?

Have students evaluate floor plans to identify how nonhuman resources probably influenced the home designs. Remind students to consider location of water heaters, air conditioners, heating units, and kitchen appliances. **KEY QUESTION:** How do computerized systems for control of sprinklers, security, air conditioning, and other functions influence housing design?^[B]

G. Landscaping

1. Areas of landscape plan

Have students read selected references about landscaping. Lead a class discussion to define the following terms associated with landscaping: *ecology, erosion, fertilizer, deciduous, evergreen, annual, perennial, private area, public area, service area, xeriscape, ground cover, grass, shrub, vine, patio, and deck*. **KEY QUESTION:** How does landscaping affect the appearance of the community, town, or city? **CRITICAL QUESTION:** Why is landscaping important?^[B]

Lead a class discussion about the major areas of a landscape plan. Stress the principles to follow when deciding upon the types of plants that should be used to landscape each area, such as annuals and perennials in public areas and decorative parks and evergreens and shrubs in service areas. **KEY QUESTION:** What activities take place in each area?

Explain the use of landscape symbols on landscape plans. Lead a class discussion about the role of landscape architects or other professionals who are qualified to develop landscape plans. **KEY QUESTION:** How much does it cost to hire professionals to assist with landscape planning efforts? **CRITICAL QUESTION:** Of what value is the development of a landscape plan?^[B]

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- Show students examples of landscape plans. Instruct students to prepare written critiques about how well the landscape plans blend in with the natural environment. Lead a class discussion about students' critiques. KEY QUESTIONS: What type of maintenance is needed? Who provides the landscape maintenance?[B]
2. Landscape materials
- Have students determine the materials used in landscaping. After the list has been developed, instruct students to use selected resources to locate pictures of the landscape materials. KEY QUESTIONS: What are the average material costs? Are the materials readily available?[B]
- Lead a class discussion about the equipment needed to maintain landscaped areas and various landscape strategies. Have students use newspaper classified advertisements or phone books to identify landscaping services. KEY QUESTION: Which is more cost effective, purchasing the equipment or hiring a professional to do the work?[B]
- List the four seasons on the chalkboard. Divide the class into corresponding groups. Instruct each group to identify and to discuss the landscape equipment needed to maintain landscapes during the assigned season.
3. Plant selection for conservation
- Invite a community resource person, such as a landscape architect, a horticulturist, or a county extension agent, to speak to the class about the selection of plants for conservation. Ask the speaker to address placement and arrangement of plants, costs, upkeep, and soil conditions. KEY QUESTION: Why is it important to develop a landscape plan?
- Distribute copies of Teaching Aid 41, Planning and Maintaining Landscapes for Conservation. Divide the class into groups and give the groups the opportunity to discuss each of the case studies on the teaching aid.[B]
- Define *xeriscape* (low water demanding landscape) for students. Lead a class discussion to develop a list of plants appropriate for xeriscapes. NOTE: Contact the Texas Tech University Water Resources Center for audiovisuals about xeriscapes. KEY QUESTIONS: What effect does a xeriscape have on conservation? What measures do nurseries take to help homeowners select plants for conservation?

TAC 75.83
HOUSING, DESIGN, AND FURNISHINGS
UNIT IV

COMPETENCY:

(r.4) *Concepts and skills related to home safety.*

SUB-COMPETENCIES:

(A) *Relate housing conditions to health and safety.*

(B) *Discuss the importance of home maintenance and safety.*

(C) *Describe housing features for family members with special needs.*

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IV. Home safety

A. Health and safety

1. Regulations

Have students read selected references about health and safety in housing. Lead a class discussion about reference information available. **KEY QUESTION:** What federal, state, and local regulations affect health and safety?^[B]

Lead a class discussion about agency seals of approval for household equipment. **KEY QUESTIONS:** How are the regulating agencies funded? Who pays for the research and development in these agencies? **CRITICAL QUESTION:** What might happen if regulating agencies did not exist?

2. Methods and practices

Lead students to brainstorm for types of home equipment that control temperature. Lead a class discussion about recommended indoor temperature settings. Cite case studies of illnesses, injuries, or deaths that have been attributed to inadequate home temperature control. **KEY QUESTION:** How does temperature control affect the health of individuals? **CRITICAL QUESTION:** How should home temperature control problems be resolved?

Define *direct, indirect, local, and accent lighting*. Show illustrations of each type of lighting and have students practice identifying them. Also instruct students to identify the ways each type of lighting ensures home safety.

Display different types of light bulbs. Lead a class discussion about differences between fluorescent and incandescent lighting. Explain wattage. **KEY QUESTIONS:** Is wattage important to home safety? How does inadequate lighting affect health?

Lead students to brainstorm for types of home ventilation, such as windows and exhaust fans. **KEY QUESTION:** How important is

[B] = Basic Skill Reinforcement

[C] = Common Essential Element

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adequate ventilation? In which rooms of a home is ventilation needed? What type of ventilation is needed for these rooms? **CRITICAL QUESTION:** What practices should be used to increase ventilation?

Display various types of electrical extension cords and adapters. Have volunteers demonstrate the correct use of each type of extension cord and adaptor. **KEY QUESTIONS:** When should extension cords be used? What purpose do adapters serve?^[C]

Invite a community resource person to present a demonstration about how to replace a plug on an electric cord. Give each student the opportunity to practice replacing plugs.

Display examples of several types of fire extinguishers. Show an audiovisual that demonstrates proper use and storage of fire extinguishers. **KEY QUESTIONS:** Where can fire extinguishers be purchased? What are the different classes of fires? Can the same fire extinguisher be used for all types of fires? If no fire extinguisher is available, what other resources can be effective? Where should fire extinguishers be stored in the home? Does having a fire extinguisher affect homeowner's or renter's insurance?

Have students draw their houses on graph paper. Instruct them to devise a fire escape plan to use in their homes in case of fire. Stress the importance of including a backup plan in case fire blocks the main exit. Encourage students to practice escape drills with their families.^[B]

Have students research the cost of smoke alarms. Lead a class discussion about how each type of smoke alarm operates. Show examples of alarms available to the general public. **KEY QUESTIONS:** What is the school's smoke alarm policy? the community's policy? What sources provide information about smoke alarm ratings?^[B]

Lead a class discussion about the waste removal alternatives available to families living in rural areas or in suburbs. Divide the class into groups and instruct each group to use telephone books to identify and locate waste removal alternatives. Also instruct each group to determine the financial cost of each waste removal alternative. **KEY QUESTION:** How does inadequate waste removal and elimination affect health and safety?^[B]

Display a blueprint for a home that indicates elevations, door and window size, and door and window placement. Have students evaluate the home design for safety. **KEY QUESTIONS:** Are the windows easily accessible to open and large enough to climb

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

through? Where are the doors located? Are the stairways or steps easy to see? **CRITICAL QUESTIONS:** Should the design be modified to increase safety? What modifications should be made?

Invite a homeowner who has installed home alarm systems to speak to the class about the reasons for selecting and installing home alarm systems. Guide students to prepare questions prior to the speaker's arrival.

Divide the class into groups. Have the groups research the cost of home alarm systems. Have elected group leaders share the information with the class. Ask volunteers to develop a chart to illustrate the information obtained.^[B] ^[C]

As an FHA/HERO activity, have members prepare displays about home safety for the community. Make arrangements for members to distribute safety checklists for community residents to use in their homes.^[B] ^[C]

Have students read books and other resources that identify health and safety hazards in the home. Instruct students to draw cartoons that identify unsafe conditions often found in homes. Examples include the following: frayed electrical cords, loose matches, and oily rags. Display the cartoons on a bulletin board. **CRITICAL QUESTION:** What preventative measures should individuals take to eliminate health and safety hazards in the home?^[B]

Allow volunteers to prepare a bulletin board titled "Prescription for Safety." Instruct them to use pictures, sketches, or cartoons that depict safe practices in their homes.^[B] ^[C]

B. Home maintenance and safety

1. Cost of upkeep

Instruct students to read selected references about home maintenance. Have them write summaries of each reference they read. Compile the summaries into a classroom reference booklet. **KEY QUESTIONS:** What is home maintenance? How much money a month should be budgeted for maintenance for different types of dwellings?^[B]

Lead students to brainstorm for a list of repairs that frequently need to be completed in an apartment, condominium, town house, or single unit dwelling. Divide the class into pairs and instruct each pair to investigate the local costs of each repair.^[B]

Lead a class discussion about costs associated with the upkeep of new and previously owned homes. Have students complete Teaching Aid 42, Home Maintenance. Divide the class into groups and instruct the groups to project five-year, ten-year, and twenty-year maintenance budgets for the houses in each of the price ranges on the teaching aid. **KEY QUESTIONS:** On which home

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maintenance repairs is most money spent? What home equipment requires monthly service? annual service?[B] [C]

Lead a class discussion about new home warranties and major household equipment warranties in previously owned homes. KEY QUESTIONS: How do consumers benefit from warranties in previously owned homes? How much do the warranties cost? Who pays for them?

Lead a class discussion to define *renovating* and *remodeling*. Have students debate which remodeling projects increase home values. KEY QUESTIONS: When is it better to renovate instead of remodel? At what point is remodeling not worth the expense?

Instruct each student to compile a "How To" notebook of information about building and maintenance tasks. Also instruct each student to compile a list of equipment needed to complete most maintenance jobs. KEY QUESTIONS: Where can the building and maintenance materials be obtained? How much do they cost?[B]

Instruct students to contact lending agencies and builders to gain information about home improvement costs. Tell students to gather information about various types of loans available for home improvement and remodeling. Remind students to gather information about sources of loans, requirements for qualifying for loans, finance charges, interest rates, and total costs.[B] [C]

Invite a resource person who specializes in remodeling to speak to the class and show "before" and "after" pictures of completed projects. Ask the speaker to give information about how remodeling adds value to homes.

Direct each student to measure a space in a home that is not used for living space, but could be converted to living space. Instruct students to draw the space dimensions on graph paper. Remind them to indicate windows, doors, and traffic lanes. Students should determine how to use the spaces. Example uses of converted living spaces include offices, family rooms, play rooms, and bedrooms. Allow students to design the new spaces. Display the projects in a school display case.[B]

Show audiovisuals about simple home repairs. Instruct students to write paragraphs that summarize the information presented in the audiovisuals.[B]

Invite people who are employed outside their homes to participate in a classroom panel discussion about how they prioritize home maintenance tasks. Guide students in preparing questions to ask

CONCEPTS

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the panel members. KEY QUESTION: How much time do home maintenance tasks require each week?

Lead a class discussion about the maintenance requirements of various types of housing. Ask students to share information about who performs which tasks in their households. KEY QUESTION: How does the type of home affect its maintenance requirements?

Instruct students to interview families in various stages of the family life cycle. Direct students to ask questions about the amount of time the families spend on maintenance tasks. Have students write paragraphs that summarize the information gathered during their interviews. CRITICAL QUESTIONS: Do the families use time efficiently? Why? What is dovetailing? How could dovetailing help some families manage their time?^[B]

Divide the class into groups and instruct the groups to write commercials that promote imaginary household cleaning products. Have the groups perform their commercials in class. Ask class members to evaluate the commercials' truthfulness and representation of the products' abilities. KEY QUESTIONS: Can one type of product be used for several jobs? How?^[B] ^[C]

Have students perform cost comparisons of cleaning supplies commonly used in homes. Lead a class discussion to help students evaluate the labels found on residential cleaners. KEY QUESTIONS: What are the common ingredients found in cleaners? What is wax buildup? How can wax buildup be avoided?^[B]

Divide the class into groups and instruct each group to adjust a cold water faucet so that it drips steadily into a measuring cup for fifteen minutes. Tell students to calculate the amount of water wasted by a dripping faucet in one hour, one day, one month, and one year. Lead a class discussion to determine ways to eliminate dripping faucets.^[B]

For an FHA/HERO activity, have a "squeak day" to allow students to fix at least one squeak in each classroom. Have volunteers publicize the day and ask other teachers to locate squeaks in their classrooms.^[B] ^[C]

Lead students to brainstorm for a list of equipment and tools needed for basic household repairs. KEY QUESTIONS: How might the tools and equipment be acquired? How much do the tools cost?^[B]

As a Student Occupational Activity, have students perform home repairs. Instruct students to write paragraphs that describe the

CONCEPTS

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C. Special needs housing features

processes they used to complete the repairs. Stress the importance of evaluating the repair jobs.^[B]

Display Teaching Aid 43, Housing Adaptations. Lead a class discussion about any difficulty or cost involved in making the adaptations shown on the teaching aid. KEY QUESTIONS: How would the adaptations assist an elderly or handicapped person? Would an elderly or handicapped individual consider the adaptations to the house worth the money and time spent? Why? CRITICAL QUESITON: How could these housing adaptations affect an elderly or handicapped person's self-esteem?^[B]

Invite a resource person from the Department of Human Services or a similar state agency to speak to the class about suggested structural safety modifications that should be made for handicapped or elderly individuals. Guide students in preparing questions prior to the speaker's arrival.

Lead a class discussion about safety features that should be constructed in the homes of elderly and handicapped people. Examples include the following: handrails, ramps, and additional or specialized lighting. Have each student select a safety feature. Instruct each student to write a short report about the importance of the selected feature in the homes of handicapped or elderly people.^[B]

Invite a building inspector to speak to the class about the relationship between commercial building codes and the needs of handicapped people. Guide students in preparing questions prior to the speaker's arrival. KEY QUESTIONS: Are there differences between commercial and residential requirements? Why?

TAC 75.83
HOUSING, DESIGN, AND FURNISHINGS
UNIT V

COMPETENCY: (r.5) *Concepts and skills related to futurist housing.*

SUB-COMPETENCIES: (A) *Analyze the impact of technology on housing.*

(B) *Discuss future housing trends.*

CONCEPTS

- V. Futurist housing
 - A. Technological impact
 - 1. Furniture

LEARNING AND EVALUATION EXPERIENCES

Have students examine current housing magazines. Direct students to clip pictures that illustrate new trends in furniture, materials, and housing. Lead a class discussion during which students discuss the trends they believe will continue. Also ask students to predict future trends.

Instruct students to review housing magazines to obtain pictures of new furniture designs. Lead a class discussion about the materials used to design and construct the furniture. **KEY QUESTIONS:** What new materials are being used? new fabrics? **CRITICAL QUESTION:** What trends are predicted for the future?

- 2. Materials

Have students work in groups to develop class projects that focus on the development of housing. Stress that the reports should begin with emphasis on early caves, tents, and sod homes. Encourage the groups to present information about possible housing in space, underwater, or underground.[B] [C]

Lead a class discussion about the costs of new housing products and the costs of established and well-known housing products. **KEY QUESTION:** What determines product cost?

- 3. Advanced systems in housing

Have students read and collect articles from the housing sections of various newspapers and magazines. Have students summarize the housing articles during oral presentations. Lead a class discussion about the articles that relate to current or future housing trends.[B]

Invite a builder or an architect to present information about possible future developments in housing. Examples include the following: voice activated control systems, computerized home energy management, touch on and off appliances, automatic water sprinklers, and appliance timers. Guide students in preparing questions prior to the speaker's arrival.

[B] = Basic Skill Reinforcement

[C] = Common Essential Element

CONCEPTS

LEARNING AND EVALUATION EXPERIENCES

Lead a class discussion about changes in the design of small appliances. Examples include battery operated mixers and space-saver microwave ovens. KEY QUESTIONS: How has the use of these appliances changed the space arrangements in kitchens and other areas of the home? What influenced the appliance design changes?

Have students research the design and structural adjustments that must be made in order to house people in outer space or underwater for long periods of time. CRITICAL QUESTIONS: How will housing trends affect lifestyles? How will the housing industry be influenced by changing lifestyles?^[B]

- B. Future housing trends
 - 1. Effects of population

Have students read various references about the effects of population patterns on housing trends. Instruct students to research to obtain information about state, county, and local housing growth projections. KEY QUESTIONS: What types of planning for growth (or decline) is the state developing? the county? the city?^[B]

Invite a resource person to speak about the ways population fluctuations could create future housing demands and how the housing demands may be met. Prepare students for the speaker's presentation by helping them develop appropriate questions. KEY QUESTION: What types of homes are currently being designed to meet population needs? CRITICAL QUESTION: How should homes be designed or remodeled so that several individuals can share living quarters and facilities?

Lead a class discussion about housing for the elderly. Instruct students to research the growth projections and housing location preferences of the elderly population. Also have students gather information about the financial resources available for the elderly population. Instruct students to write reports that summarize the available information. Compile the reports into a classroom reference booklet.^[B]

Point out the geographic regions of the country including Florida, Arizona, and Southern Texas that have become appealing retirement locations. Lead a class discussion about the impact of the trends. CRITICAL QUESTION: How will the increasing elderly population affect future housing trends?

Lead a class discussion about the future availability of land for new housing development. Encourage students to consider how land availability will influence building lot sizes and costs for single and multifamily homes. KEY QUESTION: What is the relationship between housing cost and land availability? How could housing developers best utilize the land available?

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2. Effects of pollution

Lead students to brainstorm for a definition of *pollution*. Lead a class discussion about examples of pollution's effects on housing. Example effects include depletion of natural resources and exterior building deterioration. Also encourage students to consider how increasing amounts of pollution will affect future housing design and construction. **CRITICAL QUESTION:** What are some possible solutions for housing problems caused by pollution?

Have students research articles about cities, towns, or rural areas that have been evacuated because of polluted air, land, or water. Have students share their information with the class.^[B]

Divide the class into groups and instruct them to debate the effects of various waste disposal methods on the environment including dumping, incinerating, and recycling. **KEY QUESTIONS:** Which method is least destructive to the environment? What impact does home product waste have on the environment?^[B] ^[C]

3. Energy conservation

Obtain a floor plan of a large home and display it in the classroom. Have students identify methods that could be used to conserve energy in the home. **KEY QUESTIONS:** What construction adjustments might be made in the home? Why?^[B]

Ask students to project the use of passive solar and active solar energy systems in futuristic housing. Obtain solar energy information from utility companies or other sources, and lead a class discussion about its projected use. Use pictures that illustrate solar systems to supplement the discussion. **KEY QUESTIONS:** What percentage of homes have solar energy systems at the present time? How much will solar energy use increase in the future? Why?

Invite a building contractor, an architect, or a landscape specialist to speak to the class about how residential home temperature can be controlled with current technology. Prepare students for the speaker's presentation by helping them develop appropriate questions. **KEY QUESTION:** What temperature control systems are currently being used?

Divide the class into groups and instruct each group to select a nontraditional type of home energy source. Direct each group to perform background research and to present an oral report about how conventional heating and cooling systems can be improved by implementing aspects of the new nontraditional system the group has selected. Stress that each group must present an accurate description of the modification or improvement process. Remind each group to figure realistic costs. **KEY QUESTIONS:** What is the greatest advantage of the energy type? disadvantage? **CRITICAL QUESTIONS:** How will the energy conservation

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LEARNING AND EVALUATION EXPERIENCES

changes affect quality of life? Are the initial changeover costs too high to justify the transition from one energy type to another? Why? [B] [C]

4. Technology

Invite a home builder or contractor to speak to the class about the effects of technology on the quality of home construction and building materials. Prepare students for the speaker's presentation by helping them develop appropriate questions. **CRITICAL QUESTION:** What technological advances may occur in the future?

Invite a person who resides near a noise pollutant, such as an airport, highway, or public service station, to speak to the class. Ask the speaker to address the impact nonresidential noise has on quality of family life. Encourage students to use the school library to gather information that will prepare them for the speaker's presentation. [B]

TAC 75.83
HOUSING, DESIGN, AND FURNISHINGS
CAREER OPTIONS AND ADJUSTMENTS

COMPETENCY: (a.7) *Concepts and skills related to career options and adjustments.*

SUB-COMPETENCIES: (A) *Relate personal characteristics to the appropriate career(s) addressed within each home economics course.*

(a.2 A) *Identify employment opportunities and preparation requirements in chosen field.*

(B) *Describe management practices facilitating individuals assuming multiple roles.*

(C) *Relate demands and rewards in relation to personal and family life.*

(D) *Demonstrate effective money management.*

CONCEPTS

Career options and adjustments

A. Personal characteristics
needed for housing, design,
and furnishings careers

a. 2 A Employment
opportunities and
preparation requirements

LEARNING AND EVALUATION EXPERIENCES

NOTE: In situations when both Housing, Design, and Furnishings and Interior Design courses are offered on a campus and taken by the same students, the Housing, Design, and Furnishings course should focus on careers related to housing design, selection, and utilization. The Interior Design course should focus on careers related to space planning and interior treatments for businesses and homes.

Invite an interior designer or a school counselor to explain career ladders for housing, design, and furnishings careers. Lead a class discussion about the job opportunities available in these fields. Obtain and explain supply, demand, and salary information for housing careers locally and elsewhere.

Have students review the *Dictionary of Occupational Titles* to identify the tasks performed by people employed in careers related to housing, design, and furnishings. **KEY QUESTIONS:** What skills can be gained in vocational home economics education classes that are needed in housing, design, and furnishings careers? What other courses would be helpful?[B][C]

Instruct students to look through the classified sections of newspapers for jobs in the fields of housing, design, and furnishings. Direct students to select listings and share them with

[B] = Basic Skill Reinforcement

[C] = Common Essential Element

CONCEPTS

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the class. KEY QUESTIONS: What jobs are most abundant? least abundant?[B] [C]

Lead students to brainstorm for characteristics and qualities needed by people who work in the field of housing, design, and furnishings. Have each student select one quality and explain why it is important. KEY QUESTIONS: Are some qualities more important than others? Why?[C]

Show audiovisuals that illustrate qualities needed for specific housing, design, and furnishings careers. Lead a class discussion about the career information presented. KEY QUESTION: Which qualities are needed for most housing, design, and furnishings careers?[C]

Obtain copies of telephone books from different sized areas. Have students identify businesses associated with housing, design, and furnishings for each area. Divide the class into groups and instruct the groups to categorize possible job opportunities within housing, design, or furnishings businesses. KEY QUESTIONS: Where are most of the available jobs? Why?[B] [C]

Have students use colored markers to list the types of businesses related to housing, design, and furnishings. Ask volunteers to make a bulletin board that illustrates all the business types. Lead a class discussion to categorize the types of businesses identified.[B]

B. Management practices for individuals assuming multiple roles

Invite a single person, a married person, and a divorced person who work in careers related to housing, design, and furnishings to be members of a classroom discussion panel. Ask the guests to share the management strategies they use for success at home and in their careers.

Lead students to brainstorm for a list of the multiple roles individuals have. Examples include the following: wife, mother, daughter, employee, employer, and committee member or chairperson. Lead a class discussion about the kinds of management practices that are needed to fulfill multiple roles.[C]

Lead a class discussion about the ways a family is affected by a parent's career in a housing, design, or furnishings related field. KEY QUESTIONS: How do the parents' careers affect a family's lifestyle? How do the jobs of other family members affect the family's lifestyle? Why?[C]

Instruct students to write brief essays about ways they believe home management can affect efficiency on the job. After the essays have been collected, lead a class discussion to allow students to share their ideas. KEY QUESTION: What concepts

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LEARNING AND EVALUATION EXPERIENCES

and skills practiced at home can contribute to job efficiency?
CRITICAL QUESTIONS: Which home management factors should be adjusted before applying them to career or dual role management? How?[B] [C]

Have students read resources about time management. Lead a class discussion about time management and require students to complete daily charts indicating how they spend their time. **KEY QUESTION:** How important is careful organization of time to job success?[B] [C]

Invite a panel of resource people including an interior designer, a furniture store employee, and an architect to speak to the class about their management of time, energy, job, and family commitments. Also ask the panel to explain how they manage their multiple roles as career people, homemakers, spouses, and parents. Guide students to prepare questions for the panel members prior to their arrival.[C]

C. Demands and rewards of housing, design, and furnishings careers

Lead students to brainstorm for a list of housing, design, and furnishings careers. Allow students to select jobs and research the average number of hours worked each day and each week. Remind students to exclude time off given for holidays or other occasions. Have students share their information with the class. **KEY QUESTION:** Do the hours worked compare favorably with perceptions of the jobs' demands?[B] [C]

Lead a class discussion about energy levels of individuals and how energy levels affect quality of work. Have students select jobs in the housing, design, and furnishings career fields and write essays about how well they believe their energy levels suit them for the career fields they have selected.[B] [C]

Lead a class discussion about students' perceptions of job commitment. **KEY QUESTIONS:** What does job commitment involve? What does commitment to both family and job involve?[C]

Lead a class discussion about the following situation relating to commitment. Johanna was just hired to work in a furniture store to assist customers in selecting and coordinating furnishings. She is paid on commission. Johanna is expected to work on Saturdays but this week she was invited to go out of town with some friends she has not seen in a long time. **KEY QUESTIONS:** What should Johanna do? What are her alternatives? What are the possible consequences of each alternative?[C]

Instruct students to interview individuals employed in the housing industry. Tell students to focus the interviews on the rewards of

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D. Effective money management

working in housing, design, and furnishings careers. Encourage students to ask questions about social recognition, financial rewards, quality of life, and personal satisfaction. Have students share their interview information with each other.^[B] ^[C]

Invite people who have worked in housing, design, and furnishings positions to speak to the class about the personal rewards of their careers. Encourage students to ask the guests about career perceptions and expectations.^[C]

Have students use selected resources to review job benefits. Remind students to gather information about parking, transportation, and relocation expenses. Lead a class discussion about the information gathered. KEY QUESTIONS: Why are paid parking and paid transportation classified as job benefits? Why are relocation expense benefits important when considering a career?^[B] ^[C]

Ask students to define *cost of living*. Lead a class discussion about the differences in the cost of living in various geographical locations. Stress the importance of cost of living when making career decisions. Use Teaching Aid 44, Cost of Living, as a guide. Have students consider costs of local housing, food, utilities, transportation, medical care, taxes, and services. If information is available, have students consider the same cost of living factors in other locales. Encourage students to compare local figures to figures for other locations. KEY QUESTION: What impact does cost of living have on career decisions? CRITICAL QUESTION: How could earning a small salary actually result in a high standard of living?^[B] ^[C]

Invite a company personnel manager or a representative from a personnel agency to visit the class to explain employee benefits that focus on personal and family needs. Ask the guests to highlight counseling services, child care, recreational/wellness programs, staff development programs, and educational incentives. Also ask the guests to address current benefit trends and their benefits to families and employers. KEY QUESTIONS: How do employer sponsored benefits improve family life? work performance? Why do employers consider it financially advantageous to provide benefits?^[C]

Using resource materials, have students write brief reports about financial benefits of employment. Stress that the reports should include information about insurance, uniforms, housing, meals, transportation, travel expenses, and other employee expenses. Evaluate the papers based on content and effective use of communication skills. KEY QUESTION: How do fringe benefits affect total salary? CRITICAL QUESTION: Why is it important to

CONCEPTS

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weigh the fringe benefits of one job against those offered by another?^[B] ^[C]

Explain the hidden costs of employment. Examples include the following:

- 1) Additional education and training
- 2) Professional development
- 3) Professional organization memberships
- 4) Licensure
- 5) Work space
- 6) Clothing
- 7) Business expenses
- 8) Equipment
- 9) Transportation
- 10) Inventory

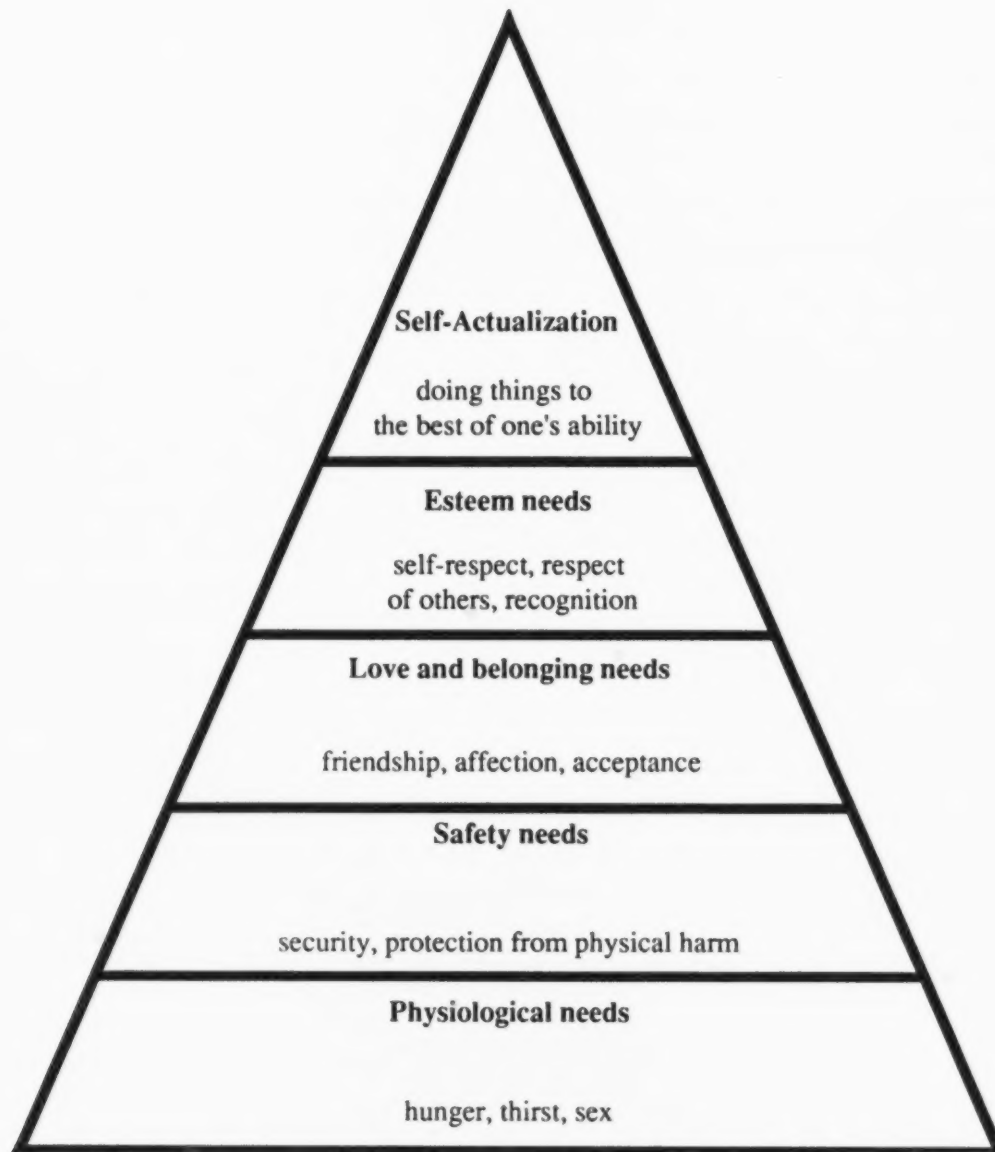
Lead students to brainstorm for a list of jobs related to housing, design, and furnishings. Lead a class discussion to identify the items listed above that employees would be required to pay for in each identified career. **KEY QUESTIONS:** Are the hidden costs identified likely to vary from employer to employer within the same career field? How can a job's hidden costs affect job selection? **CRITICAL QUESTION:** Which costs identified should be paid by employers and, therefore, become benefits?^[C]

TEACHING AID SECTION

Housing and the Family Life Cycle

Beginning Stage	Stage 1: Married couple, no children	First Home
Expanding Stages	Stage 2: Couple with children up to 30 months Stage 3: Couple with oldest child between 2 1/2 and 6 years	Second Home
Developing Stages	Stage 4: Couple with oldest child between 6 and 13 years Stage 5: Couple with oldest child between 13 and 20 years	
Launching Stage	Stage 6: The time when the oldest child leaves home until the last child leaves home	
Middle Years	Stage 7: The time when children leave home until the couple retires	Smaller Home After Retirement
Aging Years	Stage 8: The time of retirement until death of both spouses	Elderly Oriented Housing

Maslow's Hierarchy of Needs



Feelings

Complete the following sentences with words describing how you feel.

I feel _____ about my home.

I feel _____ about my neighborhood.

I feel _____ about my community.

Select one of the completed sentences above and write a short paragraph that explains your feelings more fully.

To Buy or Not to Buy

Read the following paragraph and answer the questions below from Judy and John's perspective.

Judy and John are both twenty-seven years old and have been married for eight years. On their first anniversary they bought the two bedroom, one bath home where they now live. They are expecting their third child and need a larger home. They have looked at a few larger homes and have also discussed adding a third bedroom, a bath, and a large family room to the back of their present home. They also want to repaint and carpet the rest of the house if they remodel it.

What are the advantages of buying a new home? _____

What are the advantages of buying an existing home? _____

What are the advantages of building a home? _____

What are the advantages of remodeling the current home? _____

Conservation Case Studies

- ◆ Ann likes to have windows open. She leaves the air conditioner on but sets the thermostat at eighty degrees. The air conditioner runs occasionally.
- ◆ Tom loves a burning fireplace. However, he never closes the glass door over the fireplace opening even when the fireplace is not in use.
- ◆ Jessica always feels cold. She turns the oven on and then leaves the oven door open to heat the kitchen.
- ◆ Evelyn has all her lamps on a timer so that the house will be lighted when she gets home.
- ◆ Marcie likes to take a bath in the morning and at night. She runs a full tub of hot water each time.
- ◆ Jerry is peeling potatoes and leaves the water running over the potatoes while he does the job.
- ◆ Mr. Thomas is old and forgets to change the water sprinklers after he has turned them on.

Energy Efficiency of Appliances

Information
should
include:

Estimates of
energy efficiency
or energy cost.

Table showing
yearly cost fig-
ures at various
utility rates for
various levels of
use.

Room Air Conditioner
Capacity: 6,000 BTU/hr.

(Name of Corporation)
Model(s) SA 714, SA 718

ENERGYGUIDE

Models with the most efficient
energy rating number use less
energy and cost less to operate

Models with 5,200 to
7,699 BTUs cool
about the same space

Less efficient
model
5.6
▼

7.3
THIS MODEL ▼

Most efficient
model
10.2
▼

Energy Efficiency Rating (EER)

Your cost will vary depending on your local energy rate and how you use the product. This energy cost is based on U. S. Government standards tests. How much will this model cost you to run yearly?

Yearly hours of use 250 750 1000 2000 3000

Estimated yearly \$ cost shown below

Cost per kilowatt hour	2¢	\$5	\$15	\$20	\$40	\$60
	4¢	\$10	\$30	\$40	\$80	\$120
	6¢	\$15	\$45	\$60	\$120	\$180
	8¢	\$20	\$60	\$80	\$160	\$240
	10¢	\$25	\$75	\$100	\$200	\$300
	12¢	\$30	\$90	\$120	\$240	\$360

Ask your salesperson or local utility for the energy rate (cost per kilowatt hour) in your area.

Important: Removal of this label before consumer purchase is a violation of federal law (42 U.S.C. 6302)

Energy Efficiency of Appliances

MODEL A - Cost: \$485.00

Refrigerator-Freezer
Capacity: 17 Cubic Feet

(Name of Corporation)
Model(s) AH503, AH504, AH507
Type of Defrost: Full Automatic

ENERGYGUIDE

Estimates on the scale are based
on a national average electric
rate of 4.97¢ per kilowatt hour

Only models with 16.5 to 18.4
cubic feet are compared
in the scale

Model with
lowest
energy cost
\$50

\$70

Model with
highest
energy cost
\$88

THIS MODEL ▼

Estimated yearly energy cost

Your cost will vary depending on your local energy rate and how you use the product. This energy cost is based on U.S. Government standards tests. How much will this model cost you to run yearly?

Yearly cost

Estimated yearly \$ cost shown below

Cost per kilowatt hour	2¢	\$28
	4¢	\$57
	6¢	\$85
	8¢	\$113
	10¢	\$142
	12¢	\$170

Ask your salesperson or local utility for the energy rate (cost per kilowatt hour) in your area.

Important: Removal of this label before consumer purchase is a violation of federal law (42 U.S.C. 6302)

Energy Efficiency of Appliances

MODEL B - Cost: \$545.00

Refrigerator-Freezer
Capacity: 17 Cubic Feet

(Name of Corporation)

Model(s) F117, F317

Type of Defrost: Full Automatic

ENERGYGUIDE

Estimates on the scale are based
on a national average electric
rate of 4.97¢ per kilowatt hour

Only models with 16.5 to 18.4
cubic feet are compared
in the scale

Model with
lowest
energy cost
\$50

\$51

Model with
highest
energy cost
\$88



THIS MODEL ▼



Estimated yearly energy cost

Your cost will vary depending on your local energy rate and how you use the product. This energy cost is based on U.S. Government standards tests. How much will this model cost you to run yearly?

Yearly cost

Estimated yearly \$ cost shown below

Cost per kilowatt hour	2¢	\$21
	4¢	\$41
	6¢	\$62
	8¢	\$82
	10¢	\$103
	12¢	\$124

Ask your salesperson or local utility for the energy rate (cost per kilowatt hour) in your area.

Important: Removal of this label before consumer purchase is a violation of federal law (42 U.S.C. 6302)

Energy Efficiency of Appliances

Calculate the costs below to decide which model is the better buy for you.

	Model A	Model B	
	Standard Model	Energy Efficient Model	Difference
Step 1. Purchase Price	\$ _____	\$ _____	\$ _____
Step 2. Yearly Cost	\$ _____	\$ _____	\$ _____
Step 3. How many years do you expect to keep it?	15	15	0
Total Operating Cost (Multiply Yearly Cost by number of years you will keep the appliance. In this case, 15 years.)	\$ _____	\$ _____	\$ _____
Step 4. Total Cost to You (Add Purchase Price and Total Operating Price)	\$ _____	\$ _____	\$ _____
Step 5. To figure how long it will take to recover the extra cost of the energy efficient model, divide the <i>difference</i> in price from Step 1 by the <i>difference</i> in yearly operating cost from Step 2. Difference in purchase price ÷ Difference in yearly cost = _____ Years to recovery \$ _____ ÷ \$ _____ = _____ years			

Appliance Energy Conservation Experiments

Energy Saving Egg Cookery

Equipment and Materials Needed

Two eggs
Two saucepans with lids
Water
Measuring cup

Procedure

1. Bring two saucepans with three or four cups of water to a boil.
2. Place an egg in each saucepan. Place saucepans on the same sized burners on the range.
3. Turn one burner to the highest heat and the other to a warm or simmering heat.
4. Leave the eggs in the saucepans for three minutes. Then pour the water out of both saucepans.
5. Break each egg in a separate bowl.

Is one egg cooked more than the other?

Appliance Energy Conservation Experiments

Covered Versus Noncovered Pans in Cooking

Equipment and Materials Needed

Hot plate
Saucepan with lid
Clock or watch
Water
Measuring cup

Procedure

1. Heat the hot plate.
2. Put two cups of water in a saucepan. Leave the lid off.
3. Place the pan on the hot plate and write down the time on a piece of paper.
4. Write down the time when the water boils vigorously. How much time did it take for the water to boil vigorously?
5. Empty the pan and let it cool.
6. Repeat steps 1-4, this time covering the pan with the lid before heating.

Did covering the pan save energy?

Calculating Appliance Operating Costs

A kilowatt-hour is 1000 watts used for one hour. A 1000-watt hair dryer operated for one hour uses one kilowatt-hour of electricity.

$$\frac{\text{Watts} \times \text{Hours}}{1000} = \text{Kilowatt-hours}$$

How to Calculate the Cost of Operating Appliances

1. Multiply the number of hours an appliance is used in a day by the wattage of the appliance.
2. Divide by 1000 to get the kilowatt-hours used.
3. Multiply kilowatt-hours by the rate per kilowatt-hour to find the approximate cost.

Example: Color television = 240 watts

$$\frac{240 \text{ watts} \times 5 \text{ hours}}{1000} = \frac{1200}{1000} = 1.2 \text{ KWH}$$

$$1.2 \text{ KWH} \times 5.0\text{¢/KWH} = 6\text{¢ for 5 hours a day}$$

Calculate the cost to operate the following appliances. Use 5¢ as the rate per kilowatt-hour.

APPLIANCE	WATTS	HOURS USED	COST OF OPERATION
1. Clothes Washer	512	2	
2. Clothes Dryer	5500	2	
3. Microwave Oven	1500	1	
4. Conventional Oven	3500	1	
5. Ceiling Fan	150	3	

Evaluating Energy Usage

For three days in your home, keep a record of the number of times you find a television or radio on with no one watching or listening. Also count the number of times a light is on in a deserted room. Encourage your family to use energy wisely. Challenge them to reduce the numbers recorded each day.

	Day 1	Day 2	Day 3
Television on with no one watching			
Radio on with no one listening			
Lights on with no one in room			

Did your numbers decrease, increase, or stay the same?

Do you think talking to your family helped?

Are you more conscious of saving energy?

Did you develop better usage habits?

Do you think these habits will continue?

Homeowner's Insurance

Standard Form

Properties are insured against the following hazards:

- Fire and lightning
- Loss or damage to property removed from premises endangered by fire
- Windstorm or hail
- Explosion
- Riot, riot involved in a strike, and civil commotion
- Aircraft
- Vehicles, if not owned or operated by the insured
- Sudden and accidental damage from smoke
- Vandalism and malicious mischief
- Theft
- Breakage of glass that is part of the building

Broad Form

Covers all of the above in addition to the following hazards:

- Falling objects
- Weight of ice, snow, and sleet
- Collapse of building(s) or any part of the building(s)
- Sudden and accidental tearing apart, cracking, burning, or bulging of a steam or hot water heating system
- Accidental discharge, leakage or overflow of water or steam from a plumbing, heating or air-conditioning system
- Sudden and accidental tearing apart, cracking, burning, or bulging of appliances for heating water for domestic consumption
- Freezing of plumbing, heating, and air-conditioning systems and domestic appliances
- Sudden and accidental injury to electrical appliances, devices, fixtures, and wiring (TV and radio tubes not included)

Comprehensive Form

Covers all perils **except** earthquake, landslide, flood, surface water, waves, tidal water or tidal waves, the backing up of sewers, seepage, war, and nuclear radiation.

Computing Monthly and Yearly Mortgage Payments

A monthly mortgage payment should not exceed 25% of monthly take-home pay.

Annual Income	Monthly Income	Maximum Monthly Mortgage Payment	Maximum Yearly Mortgage Payment
$\$8,000 \div 12 \text{ mo.} =$	$\$666.67 \times .25 =$	$\$166.67 \times 12 \text{ mo.} =$	\$2,000.04
\$34,000			
\$16,000			
\$19,875			
\$28,000			
\$18,513			
\$97,000			
\$21,250			
\$45,950			
\$50,000			
\$15,330			

Annual Income and Approximate Housing Cost

Experts advise people to spend no more than 150% to 250% of their annual incomes on homes. Determine the recommended maximum cost of homes for each income, using an average 1.75 (or 175%) of annual income. To determine the recommended amount of money that should be spent on a home for each income:

First:

$$\begin{array}{r} \text{Weekly Take-Home Pay} \\ \times \quad \quad \quad 52 \text{ weeks} \\ \hline \text{Annual Income} \end{array}$$

Second:

$$\begin{array}{r} \text{Annual Income} \\ \times \quad \quad \quad 1.75 \\ \hline \text{Recommended Home Cost} \end{array}$$

Weekly Take-Home Pay	Annual Income	Recommended Home Cost
\$291.00		
\$395.00		
\$434.50		
\$325.59		
\$415.00		
\$524.20		
\$500.25		
\$398.50		
\$277.34		
\$335.50		

Protection and Privacy

Barbara has four children, ages six months to five years. Her husband deserted her after the last child was born. She has no place to live because she is unemployed. Barbara and her children live with Barbara's parents in their home. Three adults and four children live in a two bedroom, one bathroom home.

Does their current housing provide adequate protection for Barbara and her children? _____

Do Barbara and her children have enough privacy? _____
Why? _____

Do Barbara's parents have enough privacy? _____
Why? _____

Maintenance Opinionnaire

For each of the following statements about cleaning, circle the number that best expresses your opinion.

Key: 1—Strongly Disagree
2—Disagree
3—Neutral
4—Agree
5—Strongly Agree

❖ A home cannot be too clean.

1 2 3 4 5

❖ Cleaning is fun.

1 2 3 4 5

❖ It is easier to keep a home clean today than it was several years ago.

1 2 3 4 5

❖ Some clutter makes a home look lived in.

1 2 3 4 5

❖ Even a small child should learn to put toys away.

1 2 3 4 5

❖ Cleaning takes a great deal of time.

1 2 3 4 5

❖ People can be judged by how they keep their home.

1 2 3 4 5

❖ Family members should be able to keep their rooms how they want.

1 2 3 4 5

❖ Homes shown on television are too neat.

1 2 3 4 5

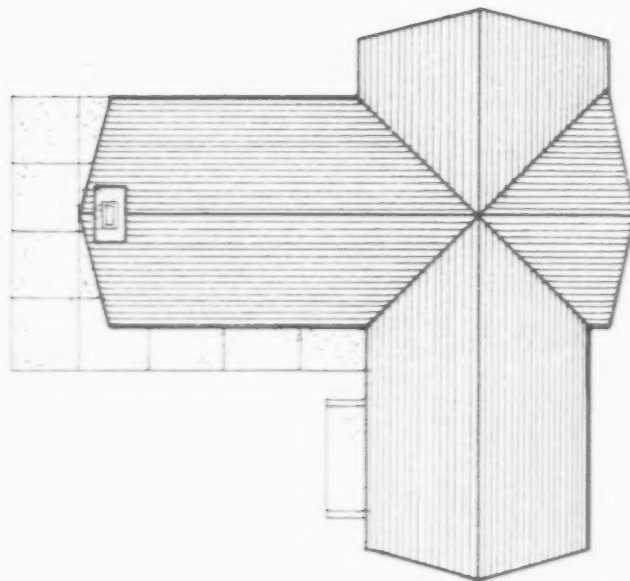
❖ All family members should spend thirty minutes a day cleaning house.

1 2 3 4 5

Household Work Schedule

Living Area	Very Frequent Chores (daily)	Frequent Chores (weekly)	Occasional Chores (as needed)	Seasonal Chores (once or twice yearly)
Kitchen	wash dishes wipe counter tops clean sink empty garbage sweep or mop floor	dispose of leftover foods clean stove drip pans wipe out refrigerator clean floor clean garbage can	clean oven defrost and clean refrigerator wash walls clean, wax floor	clean closets wash stored dishes
Bathroom	clean sinks and tub replace dirty towels empty waste baskets	wash floor clean toilets wipe tile surfaces clean toothbrush holder clean mirrors	wash throw rugs wash walls	clean closets
Living Room	clean ash trays dispose of papers straighten magazines, pillows	vacuum rugs vacuum/dust floors dust/polish furniture dust and clean lamps empty waste baskets	shampoo rugs wash lamp bowls and wipe cool light bulbs move and clean under furniture wash windows and curtains clean and wax floors dust books and pictures wash walls	clean closets clean screens or storm windows
Bedroom	air beds before making them put away clothes	change bed linens vacuum and dust	organize closets turn mattresses wash mattress covers and pads air and wash pillows wash walls	wash blankets, quilts, and spreads

Landscape Plan



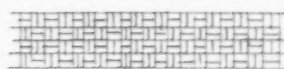


North Point

View



Drive



Brick Walk



Sidewalk



Stepping
Stones



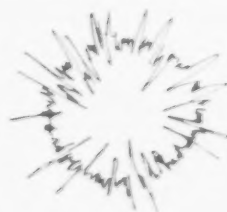
Steps



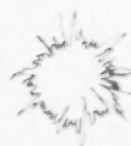
Large
Shade Tree



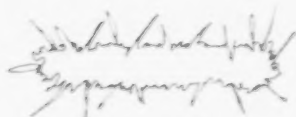
Small
Shade Tree



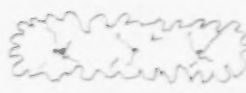
Large
Evergreen



Small
Evergreen



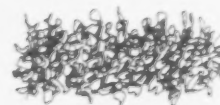
Evergreen
Shrub



Flowering
Shrub



Fern



Ivy



Grass



Ivy
on Trellis



Wood Fence



Brick Fence

They Want to Move

-  Bill and Sue live in a modest home and earn a joint income of \$25,000. Sue just learned she is pregnant. What effect will the new baby have on space needs and use of income?

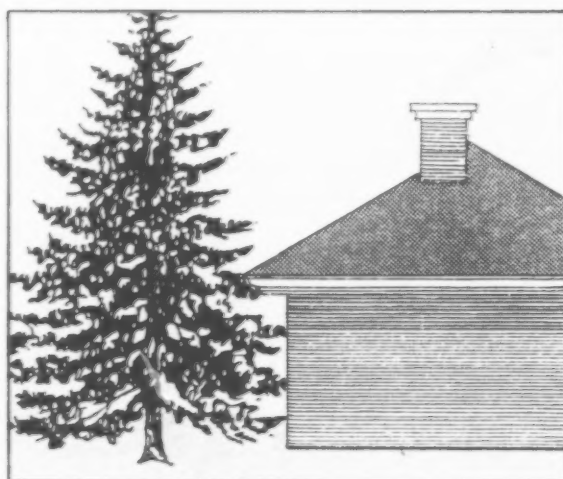
-  Maria and Juan live in an inner city apartment near their places of employment. They want to purchase a home twenty miles from their offices. How will moving affect their lifestyle and budget?

-  Arthur is a freshman living in a dormitory on a university campus. He wants to move into an apartment with a roommate. If he moves, his monthly living expenses will increase by \$100. How should Arthur adjust his standard of living in order to afford the increase in living expenses?

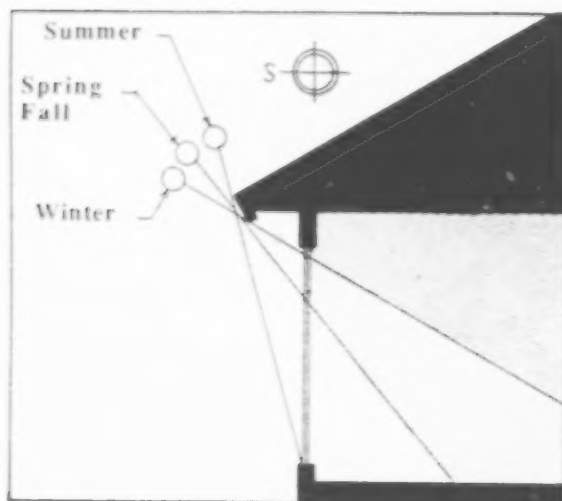
Considerations for Home Energy Conservation



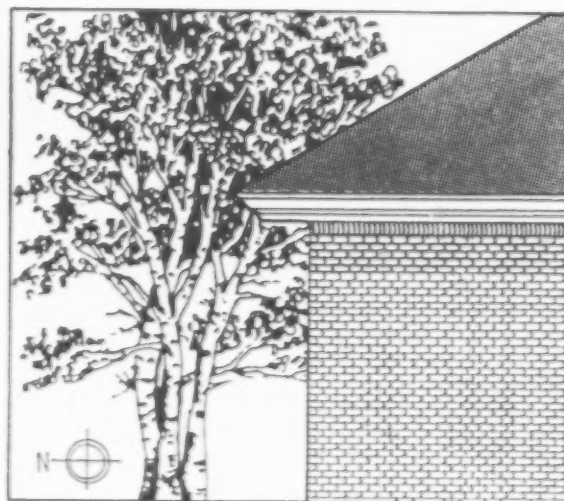
Windbreaks provide privacy and protection from sun and breezes.



Windbreaks reduce loss of heating and cooling.

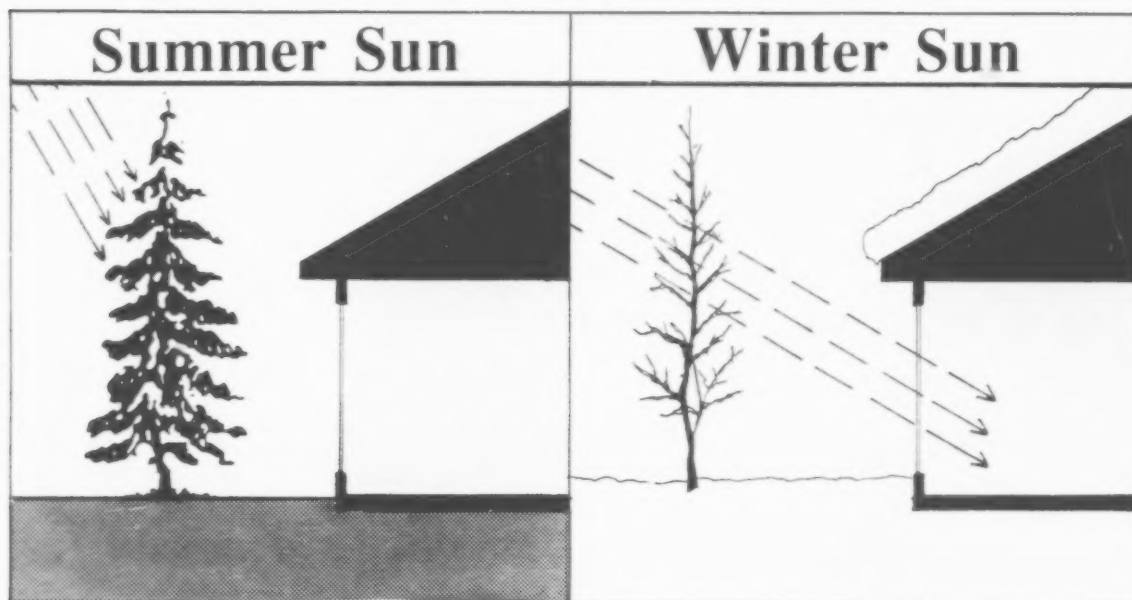


Overhangs or trees on the south and west sides take advantage of the sun.

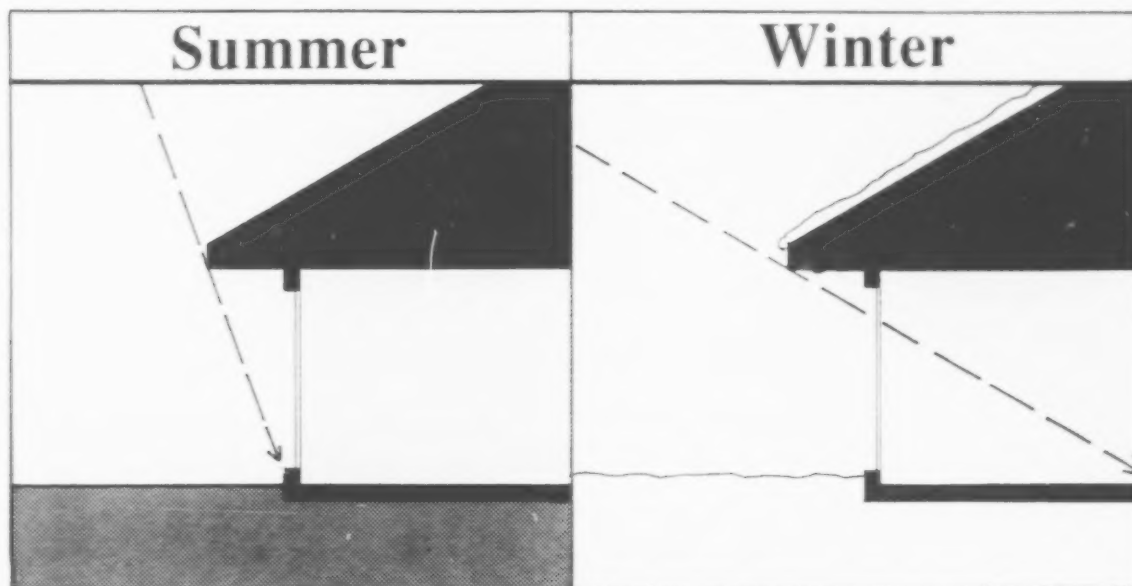


Dense tree growth on north and northwest sides protects from cold winds.

Winter and Summer Sun



Trees will shade the interior from summer sun but allow passage of the sun's rays during the winter.



Properly designed overhangs will shade the interior from the summer sun and allow additional warmth in the winter.

Energy Conservation Terminology

In the space provided, write the letter of the word or words that best complete(s) each statement.

- ____ 1. A system that uses the sun's energy to heat water is known as:
a. recycling d. a microwave
b. a skylight e. weatherstripping
c. a solar water heater
- ____ 2. A material used to prevent the transfer of heat and sound is:
a. insulation d. fiberglass
b. ventilation e. an exhaust fan
c. energy
- ____ 3. An automatic device for regulating temperature is known as a:
a. skylight d. solar water heater
b. fan e. thermostat
c. water heater
- ____ 4. To improve or adorn by planting trees, shrubbery, grass, gardens, etc. is:
a. ventilating d. landscaping
b. insulating e. recycling
c. heating
- ____ 5. A measurement of the rate at which electricity is used is:
a. a kilowatt d. a microwave
b. a volt e. solar energy
c. a watt

Insulation

Types	Description	Commonly Used Materials	Locations for Use
Blanket	Thick and flexible Available in rolls or batts Different thicknesses and R values available Available with or without vapor barrier May be cut or curved to fit different spaces	Mineral wool Rock wool Fiberglass	Attics Floors Walls Around pipes and ducts
Boards	Available in 1/2 to 4-inch thicknesses Available in 2 to 4-foot widths Available in 8-foot lengths Available with or without vapor barrier	Rigid foamed plastics Polyurethane Polystyrene	Between concrete basement walls and earth Between pairs of studs in side walls Between studs and siding as sheathing Local fire codes should be considered before installing above ground
Loose Fill	Loose pieces of insulation materials that are blown into walls or other spaces	Mineral fiber Cellulose fiber Expanded materials Perlite Vermiculite	Inaccessible spaces Attic floors Inside frame walls Cores of concrete blocks Filler between batts and rolls

Energy Conservation Experiments

Seeking Out Hidden Drafts in a Home

Equipment and Materials Needed

Pencil
Transparent tape
Plastic food wrap

Procedure

1. Make a draftometer by cutting a 12 cm. by 25 cm. strip of plastic food wrap.
2. Tape the plastic wrap to the pencil eraser end.
3. Blow the plastic gently to see how freely it responds to air movement.
4. Test a home for air leakage by holding the draftometer near the edges of windows and doors. Test a fireplace with the damper open and closed.

Do you have any drafts in your home?

Energy Conservation Experiments

What color holds heat longest?

Equipment and Materials Needed

Four 12 oz. juice cans
Poster paint: white, black, green, and red
Almost boiling hot water
Four thermometers
Food colors: red, green, and blue

Procedure

1. Paint the outside of each juice can a different color (white, black, green, and red).
2. Fill each juice can with the same amount of water.
3. Add red food color to the red can. Add green food color to the green can. Mix red, green, and blue food colors together to get black to add to the black can. Do not add any food color to the white can.
4. Place a thermometer in each cup. Record the temperature every three minutes until the water cools.
5. Make a graph to illustrate the results.

What color held heat best?

Energy Conservation Experiments

What is the most efficient material for insulation?

Equipment and Materials Needed

One light with a 100 watt bulb in a ceramic socket

Two insulating materials and two noninsulating materials (each 3" to 4" in diameter). Example materials include wood, aluminum foil, fiberglass, glass, metal, newspaper, and heavy cloth.

Four thermometers

Medium sized cardboard box with six equal, square sides

Clock or watch

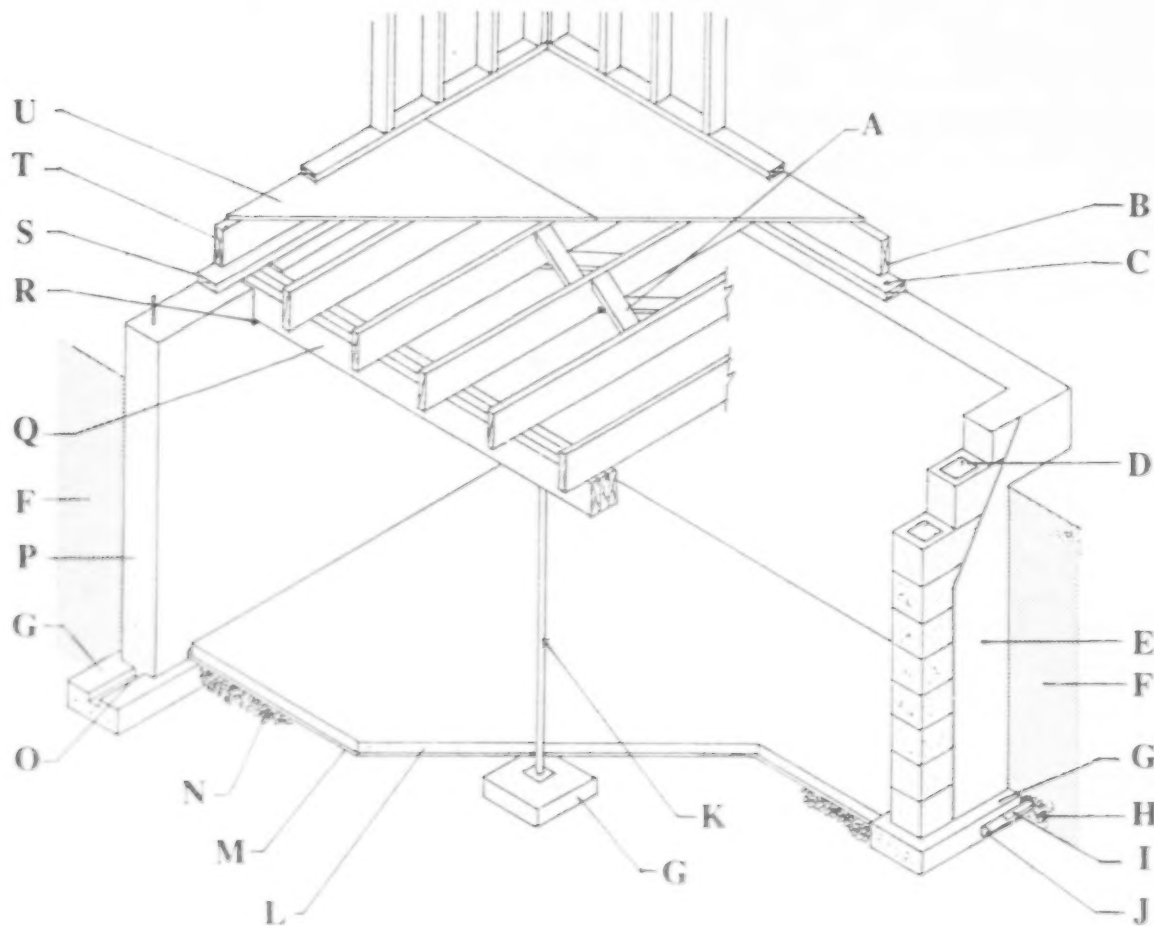
Masking tape

Procedure

1. Tape one thermometer on the outside of the cardboard box. Wait five minutes. Record the temperature of the thermometer; then remove it.
2. Cut one 3" hole in each of the four sides of the cardboard box.
3. Tape one material over each hole on the inside of the box. Tape a thermometer to the outside of each material and record the temperatures.
4. Place the light in the center of the box and turn it on. Cover the box. Leave the light on for fifteen minutes.
5. Record the temperature for each material after five minutes, ten minutes, and fifteen minutes.

Which is/are the most efficient insulator(s), and to what degree is each material better or worse?

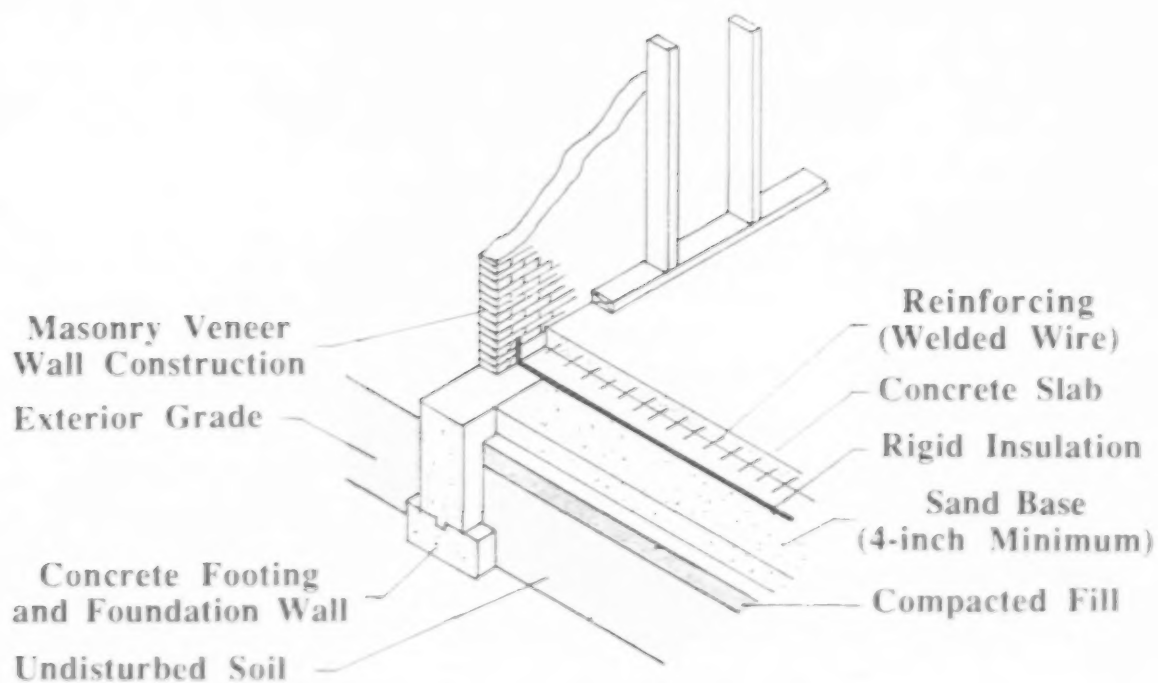
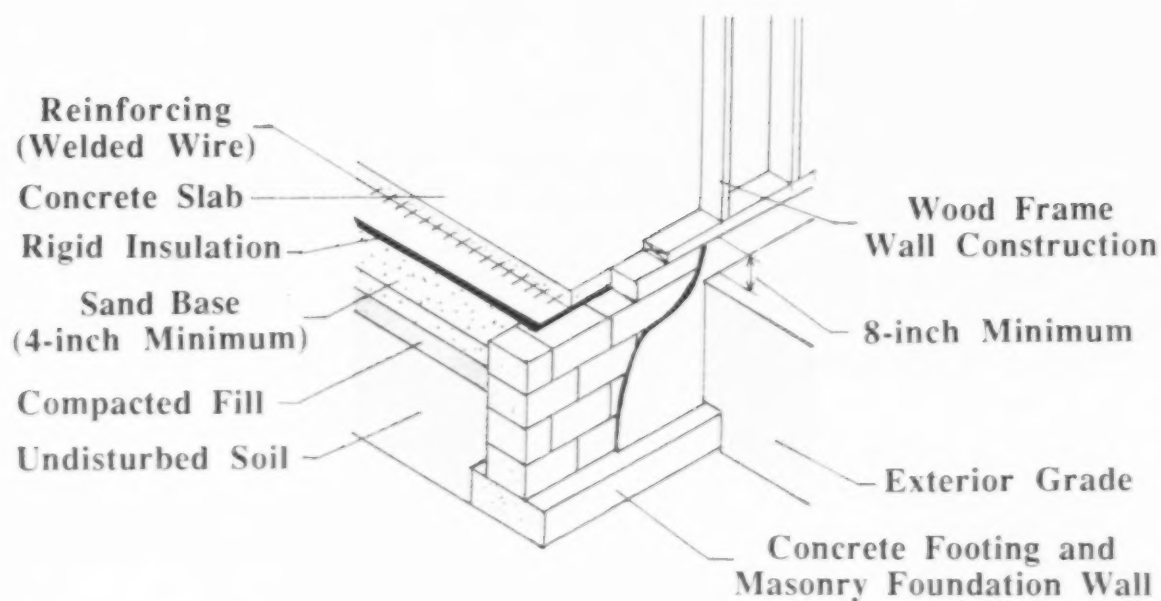
Housing Foundations



Footing and Foundation

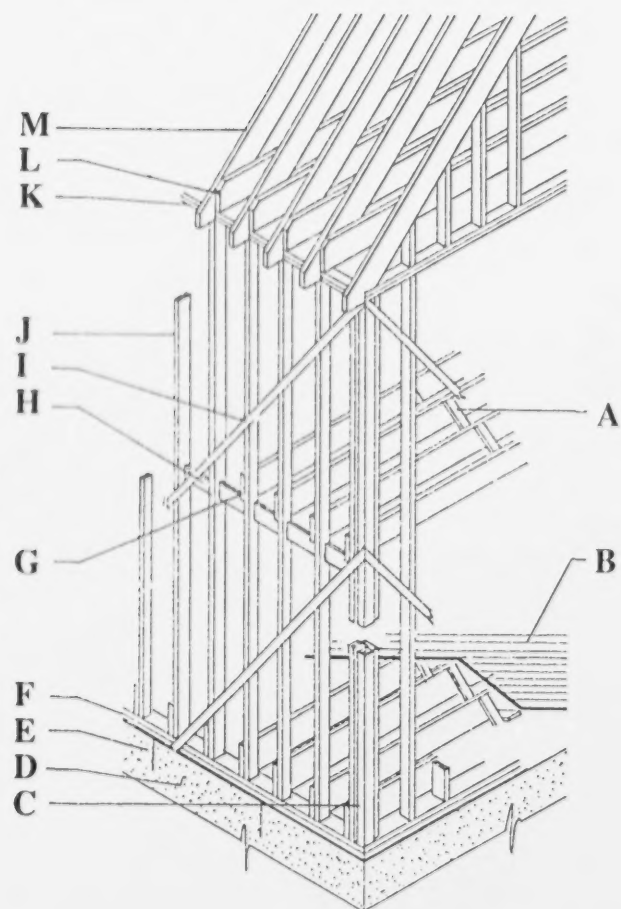
A	Cross-Bridging	L	Concrete Slab
B	Header	M	Vapor Barrier
C	Anchor Bolt	N	Sand
D	Concrete Block Foundation	O	Shear Key
E	Moisture Proofing	P	Concrete Foundation
F	Grade	Q	Girder
G	Concrete Footing	R	Beam Pocket
H	Loose Gravel	S	Sill Plate
I	Felt Paper	T	Floor Joists
J	Footing Drain	U	Plywood Subfloor
K	Steel Column		

Structural Slab on Grade



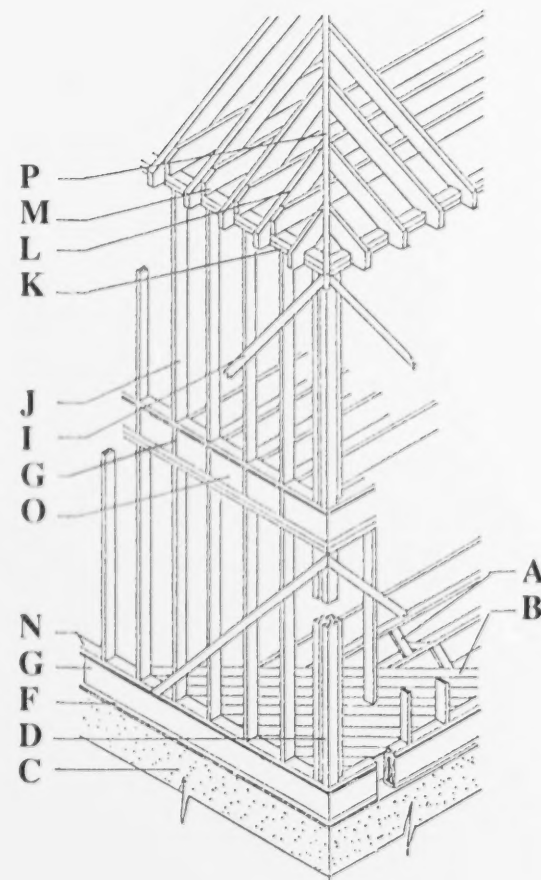
Types of Frame Construction

Balloon Framing

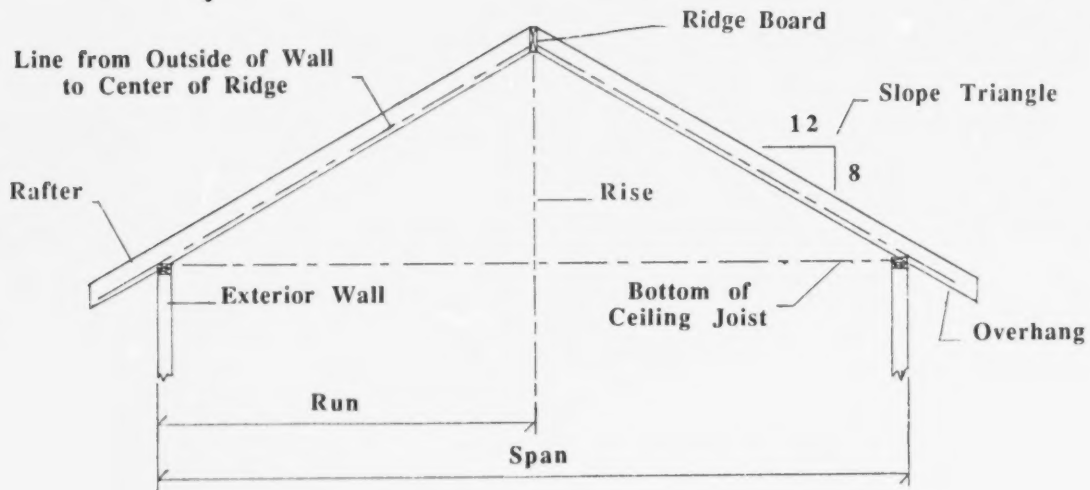


- A Cross Bridging
- B Subfloor
- C Corner Post
- D Foundation
- E Anchor Bolt
- F Sill Plate
- G Floor Joists
- H Ribbon
- I Bracing
- J Studs
- K Top Plate
- L Joists
- M Rafters
- N Sole Plate
- O Blocking
- P Hip

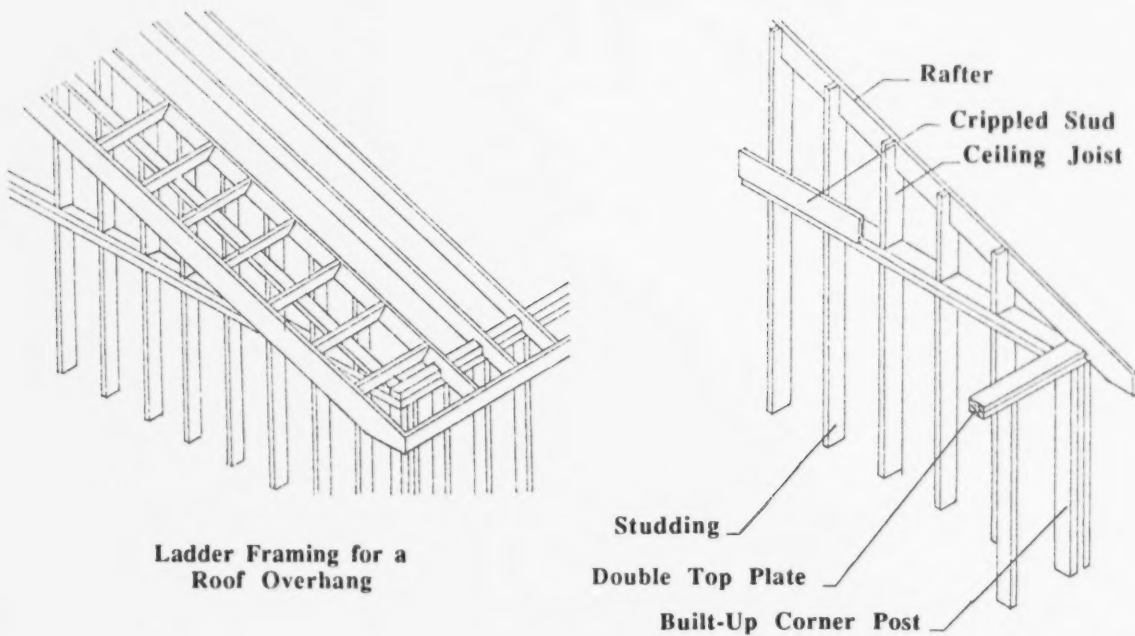
Platform Framing



Roof Frame Construction

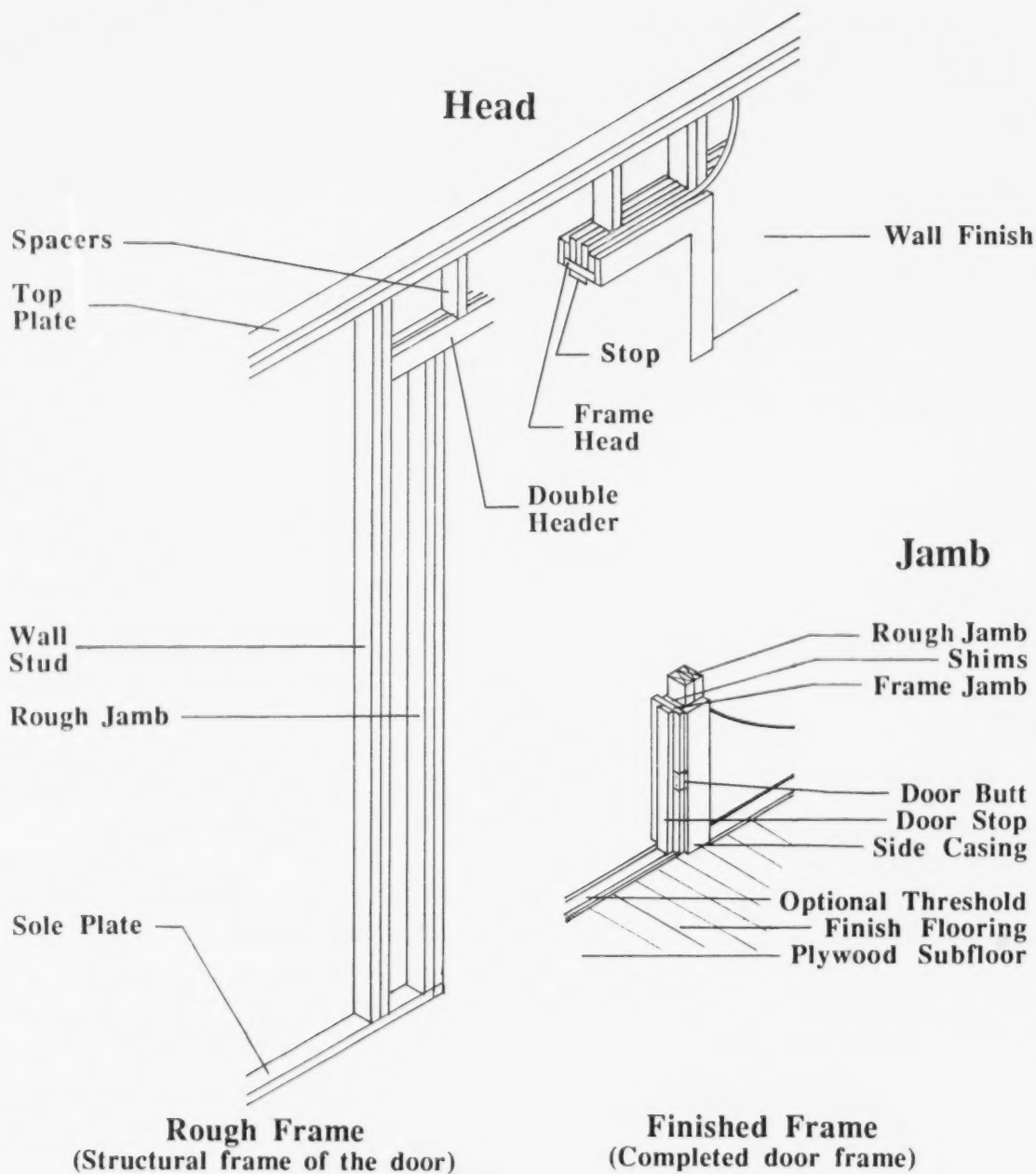


Ceiling Joists and Roof Construction



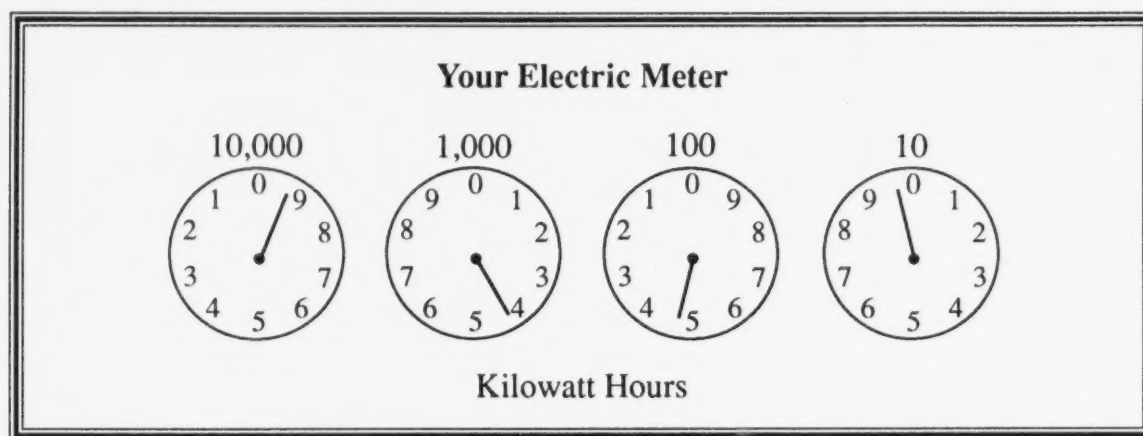
Gable End Framing

Door Frame Construction



How to Read Your Electric Meter

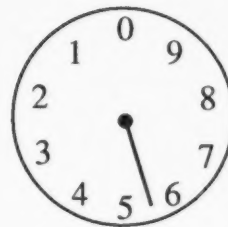
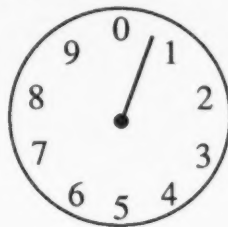
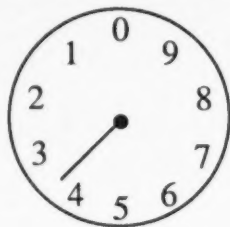
Reading your utility meter is an easy way to keep tabs on the amount of energy you use. Study the information below about reading electric meters.



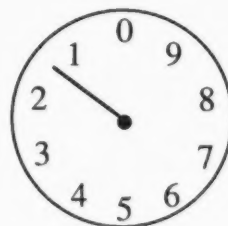
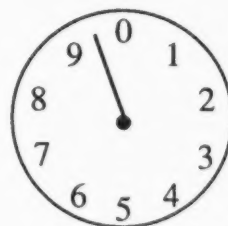
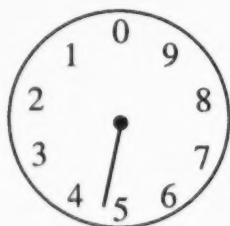
An electric meter records your use of kilowatt-hours of electricity. To interpret an electric meter, use the following guidelines:

- ★ Read dials from left to right. NOTE: Numbers run clockwise on some dials and counterclockwise on others. Each pointer moves in the direction of numbers on the dial from 1 to 10 either clockwise or counterclockwise.
- ★ The figures above each dial show how many kilowatt-hours are recorded each time the pointer makes a complete revolution.
- ★ If the pointer is between numbers, read the smaller number. (The 0 stands for 10.) If the pointer is pointed directly at a number, look at the dial to the right. If that pointer has not yet passed 0, record the smaller number; if it has passed 0, record the number the pointer is on. For example, in the figure above, the pointer on the first dial is between 0 and 9—read 9. The pointer on the second dial is between 5 and 4—read 4. The pointer on the third dial is almost directly on 5, but the dial on the right has not reached 0 so the reading on the third dial is 4. (You would read the third dial as 5 after the pointer on the 10 kwh dial reaches 0.) The fourth dial is read 9. Thus, the total reading is 9,449.
- ★ This reading is based on a cumulative total—that is, since the meter was last set at 0 (zero), 9,449 kwh of electricity have been used. To find your monthly use, take two readings a month apart, and subtract the earlier one from the later one.
- ★ Some electric meters have a constant, or multiplier, indicated on the meter. You follow the same steps as outlined above, and then multiply the usage reading by this number. This type of meter is primarily for high-usage customers.

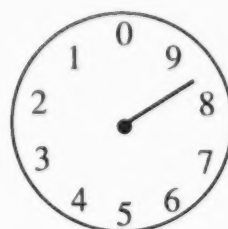
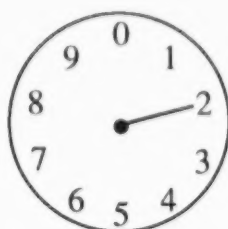
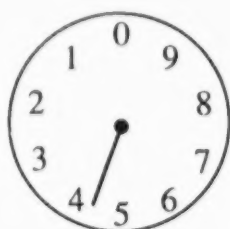
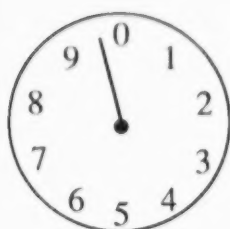
Write the correct meter readings in the blanks provided.



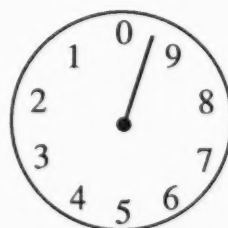
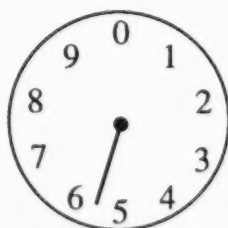
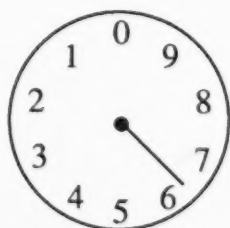
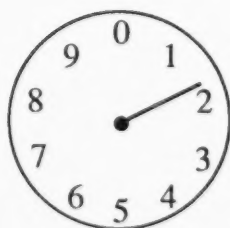
1. _____



2. _____



3. _____



4. _____

Answers: 1. 6315 2. 1491 3. 9418 4. 1659

Meter Reading Record

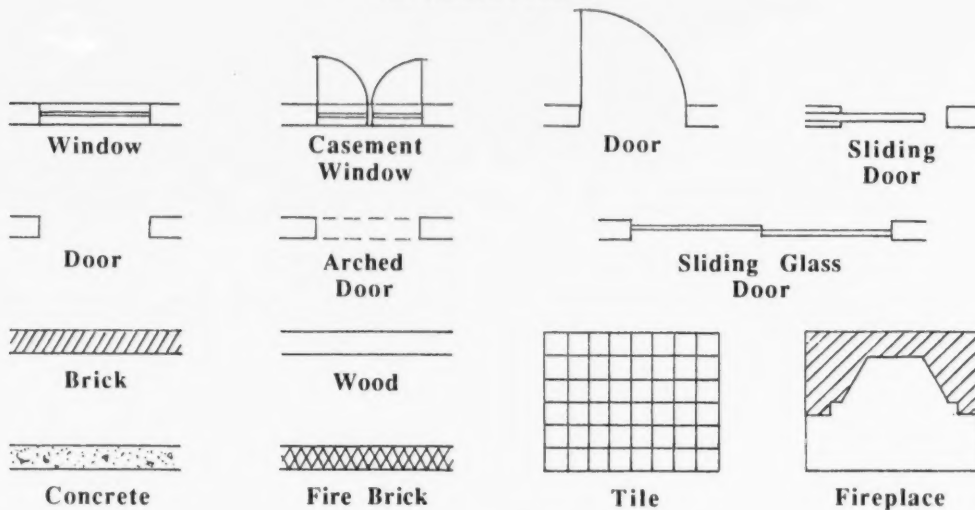
Record the meter reading at the same time each day for seven days. Subtract the readings of the previous day from the present reading to get the kilowatt-hours used in one day.

Day 1 _____	Day 5 _____
	—Day 4 _____
Day 2 _____	KWH used _____
—Day 1 _____	
KWH used _____	Day 6 _____
	—Day 5 _____
Day 3 _____	KWH used _____
—Day 2 _____	
KWH used _____	Day 7 _____
	—Day 6 _____
Day 4 _____	KWH used _____
—Day 3 _____	
KWH used _____	Weekly total
	Day 7 reading _____
	—Day 1 reading _____
	Total Weekly Use _____

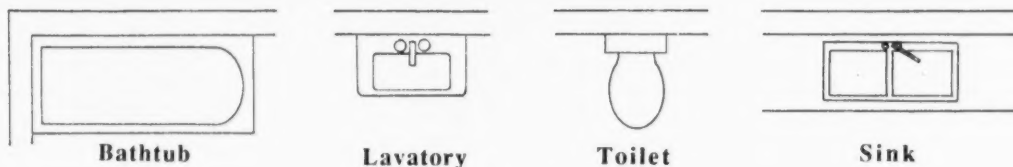
On which day of the week was the most energy used? Why?

Floor Plan Symbols

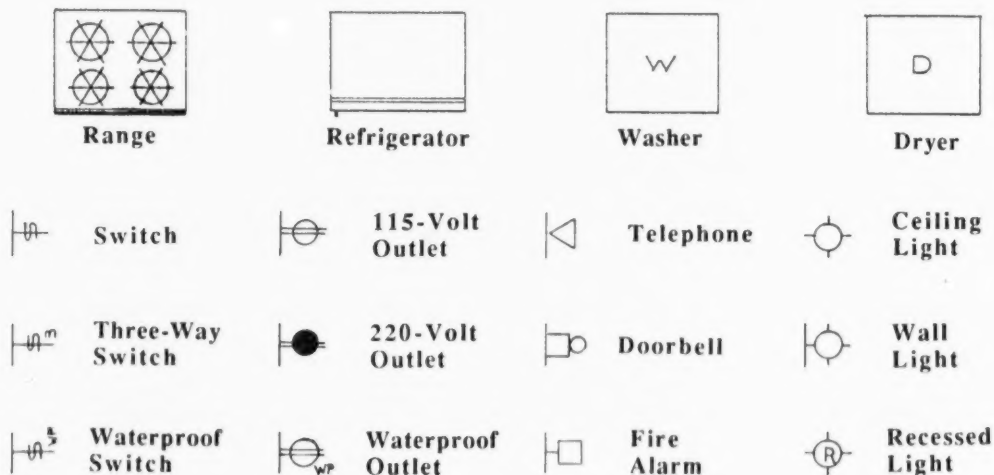
Architectural



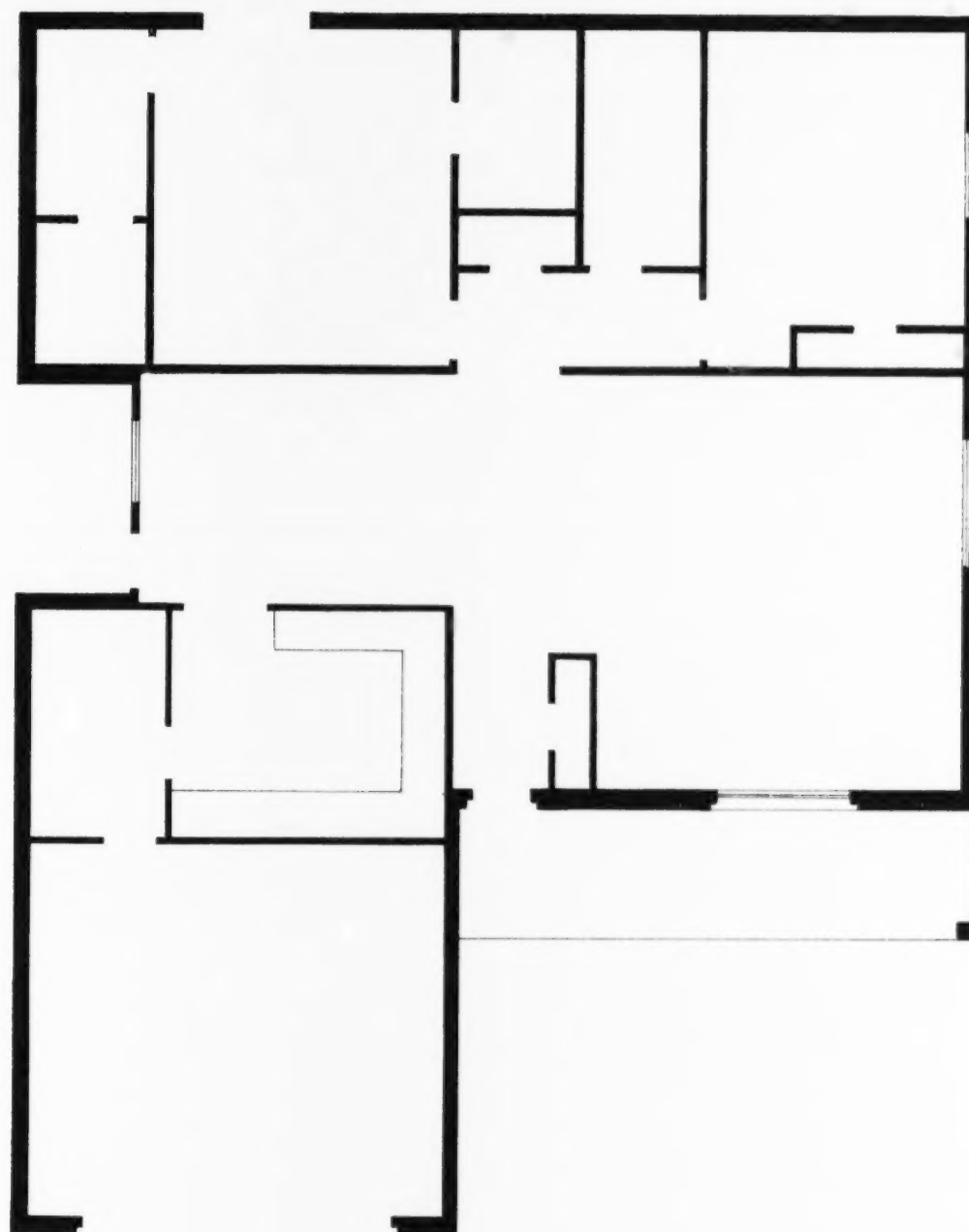
Plumbing



Electrical



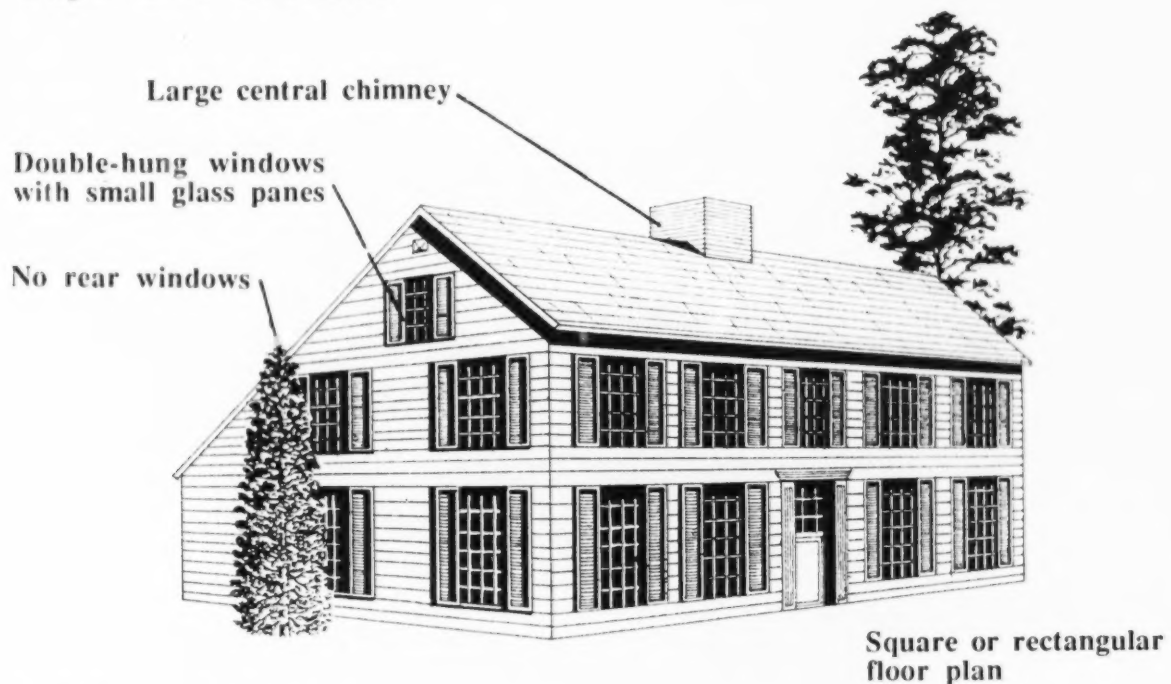
Single Unit Floor Plan



American Period Styles of Housing



Cape Cod Colonial



Saltbox Colonial



Brick Row House or Brownstone



Spanish Villa

Complex roof
with high peaks
and many valleys

Two or two and
one-half stories

Second floor
extends beyond
first floor



Nogging

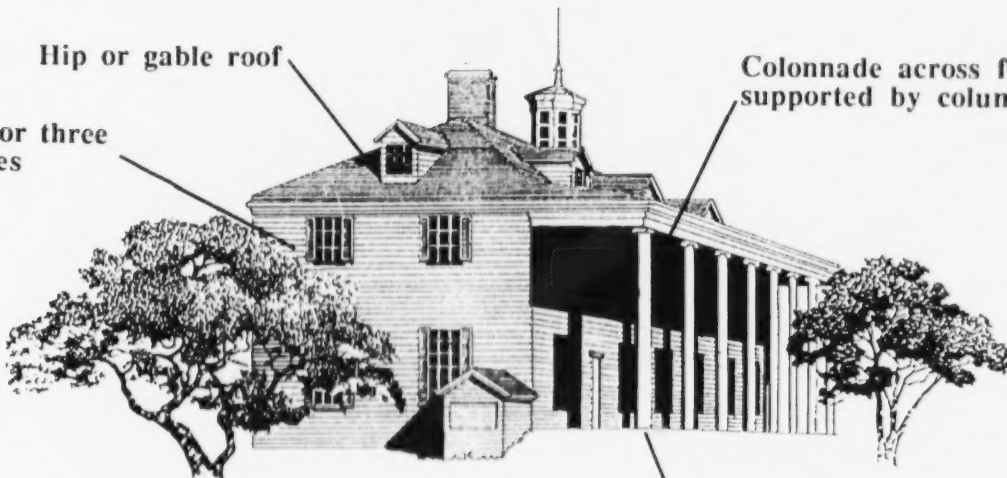
Half
timbers

Elizabethan or Half Timber

Hip or gable roof

Two or three
stories

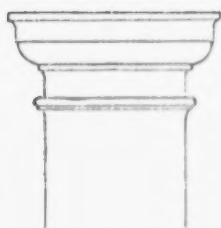
Colonnade across front
supported by columns



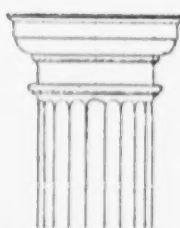
Symmetrical

Southern Colonial

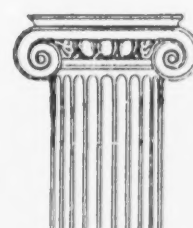
Types of Columns, Arches, and Pediments



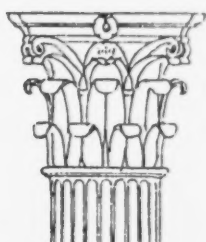
Tuscan



Doric



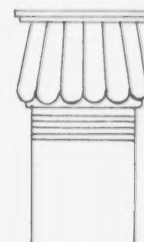
Ionic



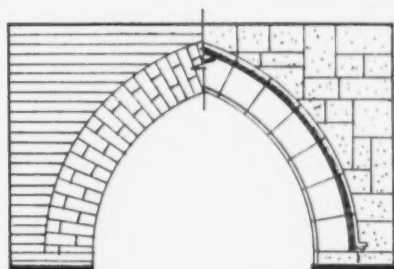
Corinthian



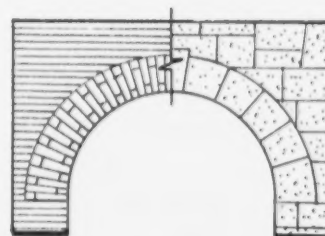
Composite



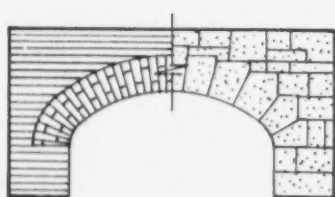
Egyptian



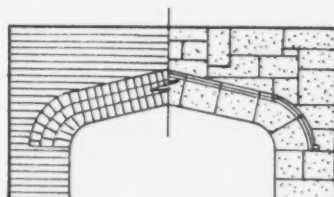
Gothic (Pointed)



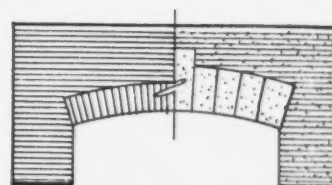
Roman (Round)



Elliptical

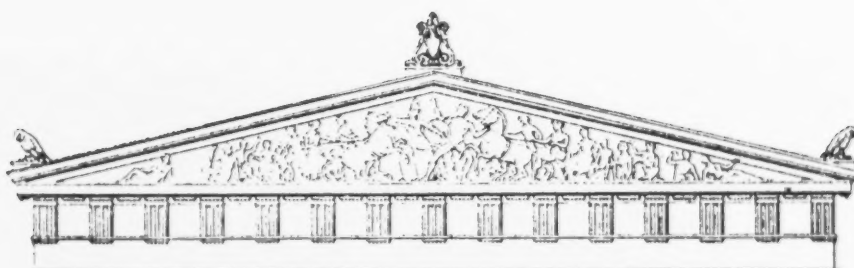


Tudor

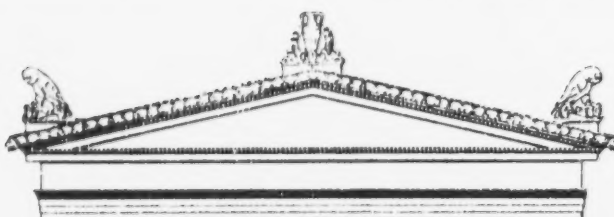


Bowed

Greek



The Parthenon, Athens

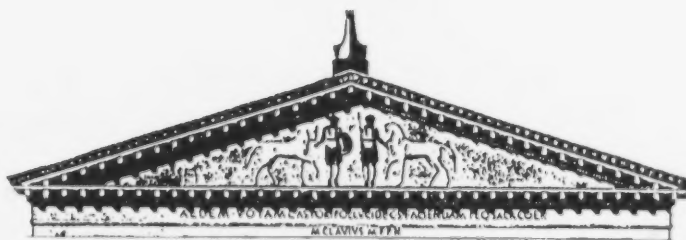


The Erechtheum,
Athens

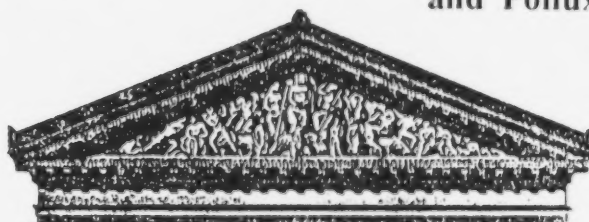


The Temple of
Athena Nike, Athens

Roman



The Temple of Castor
and Pollux, Cora



The Temple of Castor
and Pollux, Rome



The Temple of Venus,
Rome

Principles of Furniture Arrangement

- * Avoid letting all furniture hug the walls, and avoid filling too much of the center of the room.
 - * Individual pieces should be placed so that they are convenient and their uses are obvious.
 - * Plan seating around a television so that everyone has an unobstructed view.
 - * Place large pieces of furniture before trying to place the smaller ones.
 - * Place all large pieces of furniture parallel with the structural lines of the room.
 - * Scatter upholstered pieces of furniture among wood pieces.
 - * Avoid using too much furniture.
- * Observe the rules of balance so that large pieces of furniture on one wall balance doors, fireplaces, windows, or large pieces on the opposite wall. Also balance each wall from top to bottom. For example, a large picture over a small table will make the table seem light and the wall heavy.
 - * Arrange some seats to take advantage of natural light and view.
 - * Keep traffic lanes in the halls and rooms clear. It is annoying to bump into chairs, tables, or beds when passing through a door.
 - * Select a center of interest and subordinate all other interest to it.
 - * Retain good proportions by placing large pieces of furniture in front of large wall areas and small pieces of furniture in front of small wall areas.
 - * Arrange all furnishings with purpose and function in mind.
 - * Furnishings should not obstruct views of pictorial surfaces.

Dimensions of Traffic Lanes

	Major traffic lanes	3'
	Minor traffic lanes	2'
	Dining Room space between pushed-in chair and wall	16"-24"
	Hall minimum space between walls	52"
	Entry minimum space for foyer	72" x 72"
	Stairway minimum space for headroom pitch space for tread space for riser height of rail	6'6" 30°-35° 10" 7 1/2" 34"
	Living Room space between sofa and coffee table	15"

Factors for Judging a House Plan

A good house plan provides for:

-  Comfort (eating, sleeping, working, studying, and relaxing)
-  Convenience
-  Health and safety
-  Personal interests and hobbies
-  Privacy
-  Maximum livability at minimum cost
-  Adequate room area
-  Traffic patterns
-  Equipment
-  Storage
-  Elimination of wasted space, especially halls
-  Rooms serving dual purposes
-  Rooms whose shape and wall space permit good furniture arrangements without blocking traffic areas
-  Doors near corners of rooms

Judging the Areas in a Home

Dining Area

- May be combined with the kitchen, living room, family room, or in alcove adjoining either room
- Should be easily accessible to kitchen
- Should permit placement of furniture without being in a traffic lane
- Should provide storage for linens, silver, china, and glassware

Sleeping Area

- Should be well separated from living area
- Should be in corners, if possible, for proper ventilation
- Should be easily accessible to bathroom
- Should have adequate wall space for large pieces of furniture with an alternate arrangement
- Should have closets and dressers that are easily accessible
- Should include one closet for each person occupying room

Living Area

- Should have small front entrance to relieve use of living room as a passageway
- Should have entrance at one side of a living room (if no hall) with a door to other parts of the house on adjacent wall
- Should have space for walking from room to room without passing through living room
- Should provide for more than one furniture arrangement
- Should provide closet space near front door for coats

Hall Space

- Should provide privacy and traffic lanes between rooms
- Should be no larger than necessary

Storage

- Should be included in every bedroom and kitchen
- Should be in or near every other room

Utility and/or Laundry Area

- Would provide many advantages on first floor
- Should be easily accessible from kitchen
- Should provide adequate space for sorting, folding, washing, drying, and ironing
- Should be used to store cleaning equipment, workshop and garden tools, and outdoor hobbies

Kitchen

- Should have adequate storage
- Should have short work triangle
- Should have storage units near exit with space for sorting groceries
- Should have windows placed for maximum light and ventilation
- Should have adequate counter space near sink and range
- Should have sink between range and refrigerator
- Should be close to dining area
- Should be close to living areas
- Should have another exit besides one through garage

Bathroom

- Should have storage for linens
- Should be easily accessible from all rooms of house
- Should have storage for grooming supplies and medicine

Questions to Answer Before Choosing a House Plan

Check the Overall House Plan

- Does it meet the needs of your family? Allow 200 to 300 square feet of heated area for each person.
- Have the three basic areas of the house—living, working, and sleeping—been adequately separated?
- Does it fit the site and take full advantage of the slope and view of the land?
- Does the total cost and payment plan fit the family budget?

Ways to Keep the Costs Down

- Is the floor plan rectangular in shape?
- Does it have a single gable roof? Hip roofs and valley roofs cost more.
- Will it be constructed on slab or over crawl space? Sometimes slab will cost less.
- Are closets to be built between rooms? Closets built into rooms will cost more.
- Do closets have four to five foot openings with sliding or bi-fold doors?
- Are dual-purpose rooms included in the plan?
- Is there a minimum amount of space for hallways?
- Is the window area ten to fifteen percent of the floor space in each room?
- Are the plumbing fixtures reasonably close together?

Check Room Design and Relationships

Living room or rooms

- Can people go from the entrance to other areas without walking through the living room?
- Is there floor and wall space for a sofa and other large pieces of furniture?
- Does the shape of the room and location of the doors and windows allow good furniture grouping?

Kitchen

- Is the kitchen handy to the outdoors and the driveway, carport, or garage?
- Can you enter the kitchen and go to other rooms without passing through work triangles?
- If family meals are served in the kitchen, is there sufficient room for a table and chairs?

Dining area or room

- Is there a separate dining room?
- Is there sufficient space for a dual-purpose family or living room for dining?

Bedrooms

- Are individual beds or rooms provided for those who need them?
- Are all bedrooms entered without going through another bedroom?
- Is there wall space for a bed or bunks and a dresser or chest?
- Is there a clothes closet in each room?
- Do all bedrooms have reasonably short and private routes to the bathroom?

Bathroom

- Can the bathroom be entered without going through another room?
- Are all plumbing fixtures inside walls?
- Is there storage for towels and other items?
- Does the bathroom have a window or exhaust fan?
- Is there adequate lighting?
- Is there at least one electrical outlet?

Other closets

- Is there a closet for linens and bedding in the hall?
- Is there a closet for brooms, mops, an ironing board, and other housekeeping supplies?

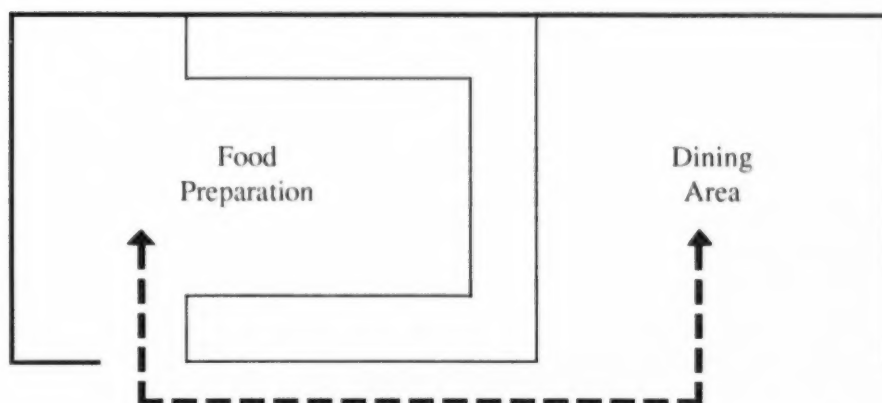
Utility room or space

- Is there space for doing the laundry and for sewing?
- Is the location convenient to the bedrooms and bathroom(s)?
- Have sufficient work space and adequate lighting and wiring been provided?

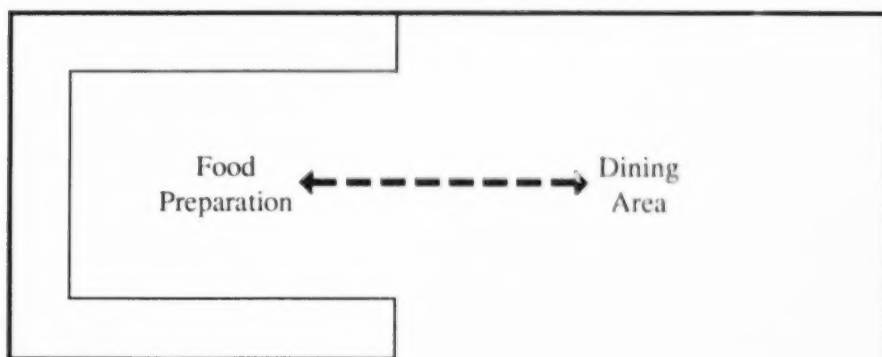
Other Features to Check

- Does the house have a good traffic pattern?
- Do doors open into the rooms they serve?
- Do swinging doors open at 90 degree angles to the walls?
- Are all outside doors covered with at least a porch for protection from rain?
- Do bedroom windows have sill heights low enough for children to see out?
- Is there provision for an outdoor living area?
- Is the garage or carport convenient to approach? Is the driveway easy to navigate?
- Does the house have at least a 100 ampere service entrance and adequate electrical circuits?

Traffic Lanes



Poor Traffic Lanes



Efficient Traffic Lanes

Practical Traffic Lanes



Planning and Maintaining Landscapes for Conservation

For each of the following situations, determine the factors that influence the selection of landscape plants and materials. Also discuss the equipment that is needed to keep the landscapes healthy and neat.



Kim lives in a garden home.



Rosie and Joe have a new house and a new baby. Their lot measures 80' long and 70' wide and has no shrubs or grass growing on it.



Gladys and Pete are retired and in poor health. They have a large corner lot in town that measures 120' long and 135' wide.



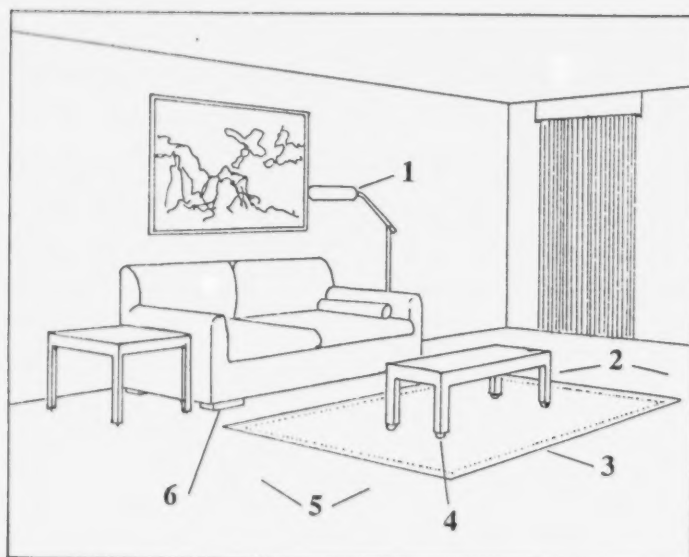
Ann and Ron live on a rocky, hilly lot in town with many trees in the front yard. Their lot is 175' long and 125' wide.

Home Maintenance

Compute the budget for the maintenance of a home. Budget 1% of the cost of the house on yearly maintenance for a new home and at least 2% for an older home.

Cost of Home	Age	Budget for Home Maintenance
\$50,000	Previously owned	
\$59,000	Previously owned	
\$65,000	New	
\$77,000	New	
\$85,500	New	
\$99,900	New	
\$120,000	Previously owned	
\$145,750	Previously owned	
\$160,000	Previously owned	
\$210,900	New	

Housing Adaptations

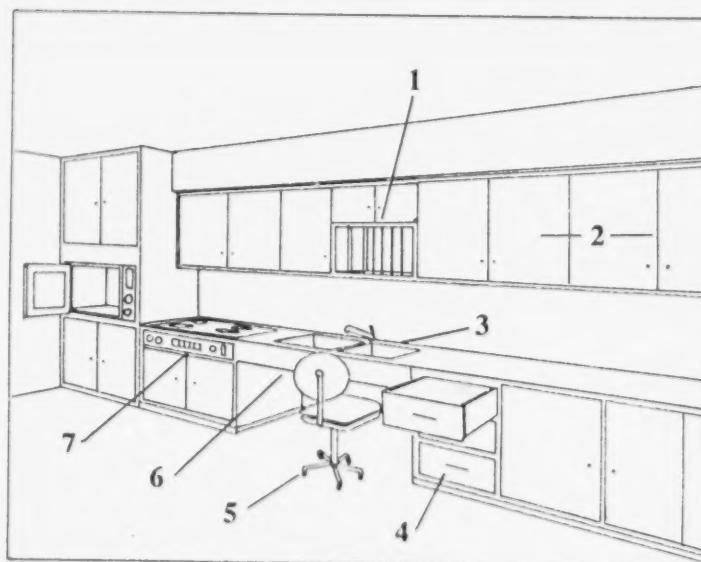


Living Room

1. Proper lighting
2. Walkways clear of electrical cords
3. Nonslip rug
4. Coffee table on wheels or casters
5. Space for wheelchair mobility
6. Sofa raised to height of twenty inches on hidden wooden blocks

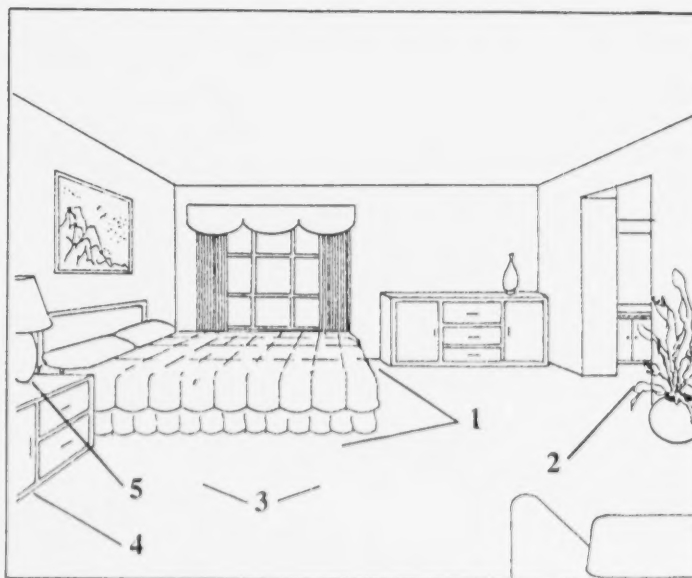
Kitchen

1. Racks above sink for shallow pans
2. Low wall cabinets
3. Shallow sink
4. Drawers within easy reach from chair
5. Chair on wheels or space for wheelchair mobility
6. Counter thirty-two inches high
7. Controls on front of stove

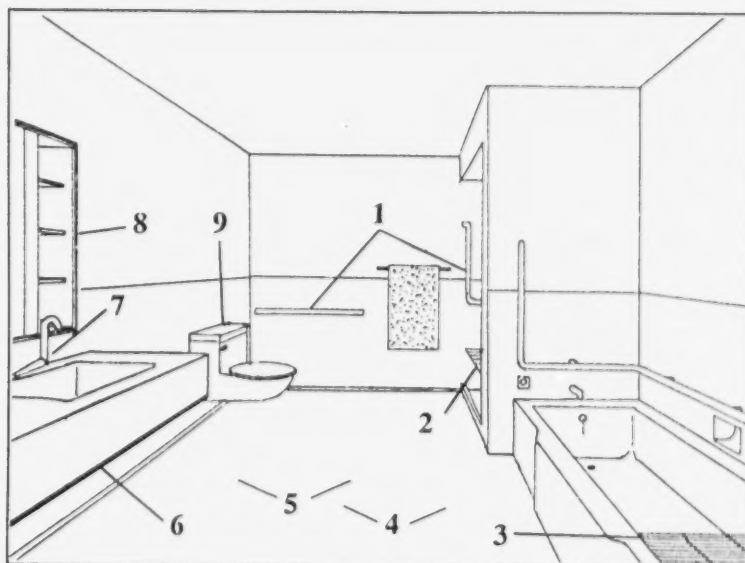


Bedroom

1. Minimum clearance of eighteen inches on both sides of bed (thirty-six inches between twin beds; forty-eight inches if occupant uses wheelchair)
2. Closet accessible by wheelchair
3. Space for wheelchair mobility
4. Bedside table for liquids, medicine, tissues, books, magazines, etc.
5. Light or flashlight conveniently located near bed



Bathroom



1. Grab bars fastened to tub, shower stalls, and wall by commode
2. Seat in shower stall
3. Seat in bathtub
4. Space for wheelchair mobility
5. Wall to wall synthetic fiber carpet
6. Sink thirty-six inches from floor
7. Lever-type faucets
8. Mirrored medicine cabinet
9. Raised commode seat

Cost of Living

Before accepting a job, it is essential to compare each locale's cost of living. What would be a generous starting salary in the Midwest may cover only the rent of a small apartment in a large East or West Coast metropolis. According to the following table, if you received job offers in Kansas City and New York City, you would not have to earn much in Kansas City to maintain a New York style of living. Use the following equation and table to compare the salaries of different locales.

$$\text{EQUATION:} \quad \begin{array}{l} \text{City \#1} \\ \text{City \#2} \end{array} \quad \frac{\text{Index \#}}{\text{Index \#}} \quad \times \quad \begin{array}{l} \text{Starting} \\ \text{Salary} \end{array} \quad = \quad \begin{array}{l} \text{Equivalent} \\ \text{Salary} \end{array}$$

$$\text{EXAMPLE:} \quad \begin{array}{l} \text{New York} \\ \text{Kansas City} \end{array} \quad \frac{145.8}{97.1} \quad \times \quad \$24,000 \quad = \quad \$36,037$$

$$\begin{array}{l} \text{Kansas City} \\ \text{New York} \end{array} \quad \frac{97.1}{145.8} \quad \times \quad \$24,000 \quad = \quad \$15,984$$

Intercity Cost of Living Index

Los Angeles	115.4
Denver	102.3
Washington, D.C.	133.2
Atlanta	110.8
New Orleans	97.5
Kansas City	97.1
Albuquerque	102.1
New York City	145.8
Oklahoma City	93.8
Dallas	104.4

Source: The college edition of the *National Business Employment Weekly*, "Managing Your Career," Spring 1988.
Dow Jones and Company, Inc.